

COMMERCIAL REFRIGERATION & AIR CONDITIONING

MAY 1956



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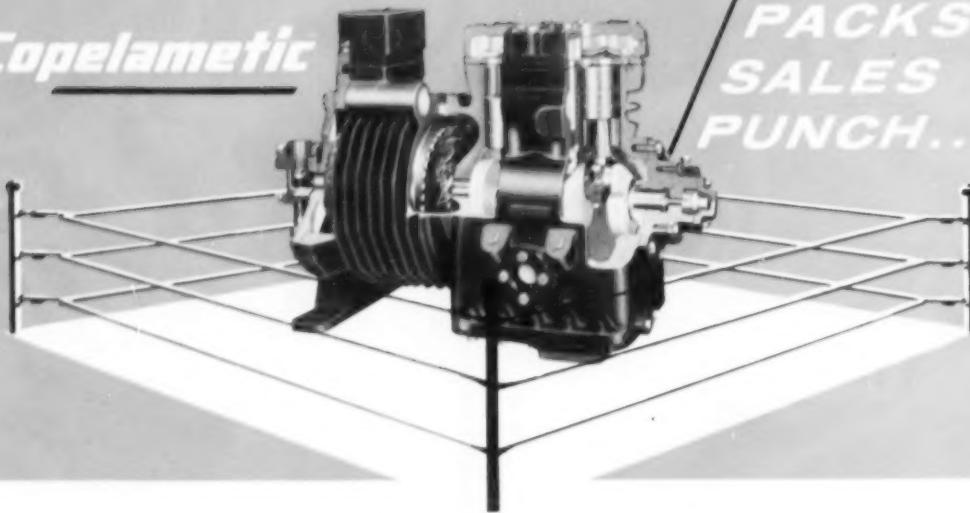
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UNIVERSITY MICROFILMS
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TURN TO PAGES 103 & 106

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

Copelametic

*PACKS
SALES
PUNCH...*



For your packaged Air Conditioner

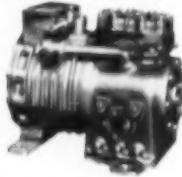
Be *positive* your air conditioner can qualify in the tough, competitive battle for public acceptance! Give your packaged unit a true, fighting heart with COPELAMETIC, the motor-compressor that sets the pace.

Every inch the champion, rugged COPELAMETIC has exceptionally high power factor to assure top performance at low operating cost. This quiet-running motor-compressor has the extra efficiency of suction cooling—a tremendous sales advantage in areas where

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Suction-cooled *Copelametic* motor-compressors



FREON-12 Models

2, 3, 5, 7½ H.P.
Model shown is
8R6-200, 2 H.P.



FREON-22 Models

3, 7½ and 10 H.P.
Model shown is
the new 9R8-1000,
10 H.P.

SINCE 1918

Copeland
REFRIGERATION CORPORATION, Sidney, Ohio



ALCO SOLENOID VALVES

...packless, tight-seating

Users like the positive, automatic shut-off of Alco Solenoids. They are precision controls manufactured for refrigerant flow. Coils are moisture-proof, extra powerful and wound for long life.

ENGINEERED
—for service
for life

Alco Solenoids may be installed in remote locations and operated by any electrical control. For all types of refrigerant service—liquid, suction or hot gas discharge . . . and for brine, water, steam and air.

Write for Condensed Catalog 20 and technical bulletins 173 and 182.

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Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

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6315

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ICE COSTS FROM
DOLLARS
to DIMES**



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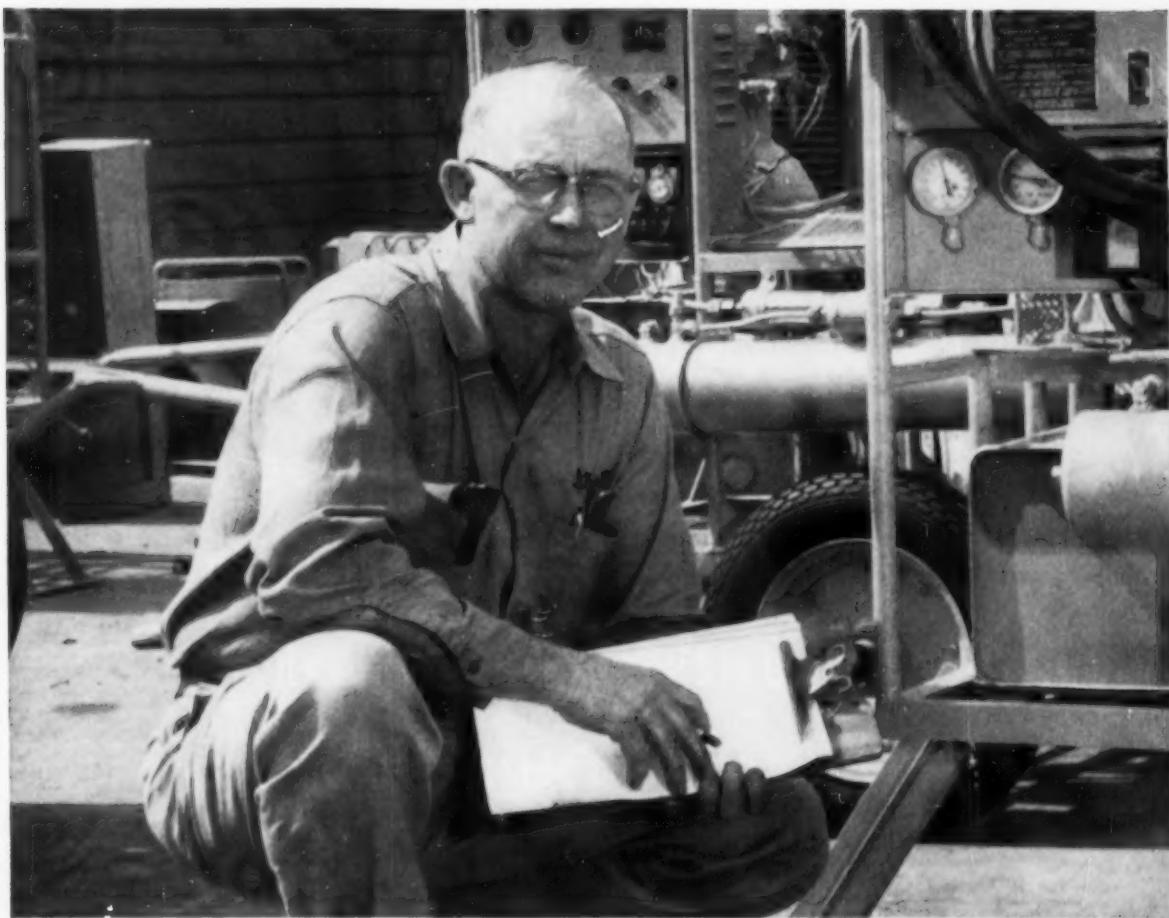
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1702 Fourth Street N. W., Faribault, Minn. • A Subsidiary of McQuay, Inc.

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MAY, 1956 • COMMERCIAL REFRIGERATION



"I'VE PROSPERED FOR 30 YEARS IN THE REFRIGERATION BUSINESS"

By Hubert E. Stewart

"Some of the things I did when I first started in the refrigeration business 30 years ago I did the hard way," says Mr. Hubert E. Stewart, Supervisor, Refrigerating Equipment & Supply Co., Ltd., San Bernardino, Calif. "But I prospered. Since then, there have been a lot of improvements. For instance, I remember the first time we used 'Freon-12'—it had just come out. I never thought anything could be so easy to handle as the 'Freon' we used on that job.

"Today, just about every air conditioning or refrigeration job we do calls for 'Freon'. As far as I'm concerned, 'Freon' answers all our needs

for a perfect refrigerant."

You can get Du Pont "Freon" refrigerants at your wholesaler's now for any air conditioning or refrigeration job. Reciprocating, rotary or centrifugal compressors; household, commercial or industrial applications—there's a "Freon" refrigerant ideally suited to your installation. "Freon" is your *best* refrigerant buy, because it's pure, dry and safe—just as it has been ever since Du Pont started making it 25 years ago. Be sure to ask your wholesaler for dependable Du Pont "Freon" refrigerants.

Want more information or technical data on uses of "Freon"? Write

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to E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Div. 35, Wilmington 98, Delaware.

Experience has no competitors

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25 years of
FREON
SAFE REFRIGERANTS

"Freon" is Du Pont's registered trademark for its fluorinated hydrocarbon refrigerants.

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...THROUGH CHEMISTRY

1906



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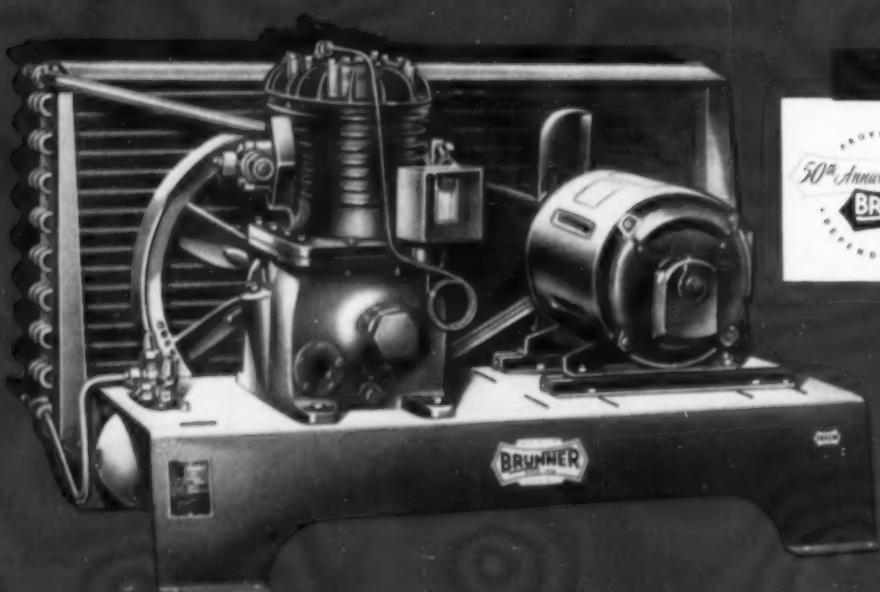
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Units set a new high for
dependability, economy
and easy servicing.

BRUNNER MANUFACTURING COMPANY, UTICA, N.Y.

THE BRUNNER CO., GAINESVILLE, GA.

IN CANADA: BRUNNER CORP. (CANADA) LTD., TORONTO, ONTARIO

Brunner Open-Type Refrigeration Condensing units for commercial refrigeration range from $\frac{1}{2}$ H.P. through 10 H.P. . . . other open-type units available up to 100 H.P. Brunner-Matic semi-hermetic units from $\frac{1}{2}$ H.P. through 3 H.P.



READER'S GUIDE

COMMERCIAL REFRIGERATION & AIR CONDITIONING

MAY 1956 • VOLUME 13 • No. 5

FEATURE ARTICLES

70 **5000 SERVICE CONTRACTS — AND AT A PROFIT!** . . . That's the result achieved by this contractor through an intensive program of preventive maintenance which has made service considerably more than a "bread and butter" business.

72 **NATURAL COOLING NEEDS HELP** . . . so mechanical refrigeration equipment was installed to maintain proper food storage conditions in a cave near Paris, France.

74 **"REFRIGERATED EXTRAS" BOOST BUSINESS** . . . for a Colorado liquor store operator who has adapted a variety of refrigerated units to his special uses.

77 **GET OUT OF TOWN** . . . this dealer advises, if you want to lick the multiple problems of a "Main Street" business location.

78 **THE PROBLEM OF CONDENSATION** . . . around refrigerated equipment is a common headache for fixture dealers and service firms. Instead of reaching for the aspirin, read this informative discussion of the causes and cures for this condition.

Air Conditioning Section

103 **RESIDENTIAL AIR CONDITIONING: Lesson No. 1**
What's In It For You . . . There's a tremendous market potential in the home cooling field for the commercial air conditioning dealer and contractor. Don't miss the boat!

106 **RESIDENTIAL AIR CONDITIONING: Lesson No. 2**
How To Build a Profitable Merchandising Program . . . Selling to homeowners is entirely different than selling to commercial users, but don't be afraid to tackle it. This article tells you how to go about it, step by step.

109 **HOME AIR CONDITIONING BETTERS FAMILY LIVING** . . . That's the conclusion resulting from a psychological survey of families living in the Austin Village.

110 **ONE HOUSE — TWO SYSTEMS** . . . Two separate air conditioning systems proved better than one in this deluxe tri-level home. Here's why.

113 **THROUGH-THE-WALL INSTALLATIONS** . . . of window-type air conditioners provide comfort cooling throughout this Florida apartment building.

114 **WHERE THERE'S AN "EVAP" THERE'S A PROSPECT** . . . for this Arizona contractor who sells mechanically refrigerated air conditioning on a replacement basis.

115 **ATOMIC AIR CONDITIONING** . . . Will it soon be a practical reality? The experts say it could happen within the next few years.

117 **HOW TO FIGURE HOME AIR CONDITIONING COSTS** . . . No slide rule is needed in this simple method of computing unit operating expenses in any part of the country.

118 **PROPER TESTING OF AIR CONDITIONING INSTALLATIONS** . . . can help you improve old systems and sell new ones.

DEPARTMENTS

About People	28	New Products	88, 124
It's the Law	50	Applications Manual	138
BTU's	69	Here's How	149
Commercial Refrigerator Sales News	80	Opportunities	157
Useful Literature	84, 122	Index to Advertisers	158

In the new Dallas Insurance Center . . .

Flexible *Thermaflex*[®] keeps floor plans flexible, too!



George L. Dahl, Architects & Engineers; O'Rourke Construction Co., General Contractor; United American Insurance Co., Owner—all of Dallas

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6

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INDUSTRIAL PUBLISHING GROUP
(A Division of Telenews Productions, Inc.)
800 Carlton Blvd., 812 Huron Road
Cleveland 15, Ohio

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with Selective Charges

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for suction temperatures ABOVE ZERO

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for Extremely Low Temperatures

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Better still...Buy Sporlan Right-Down-The-Line and get Peak Performance throughout.

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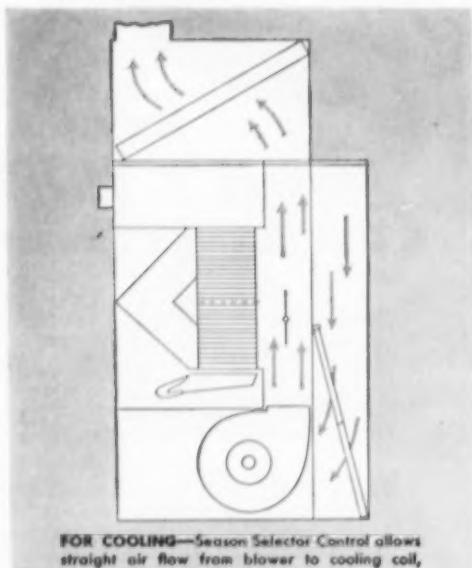


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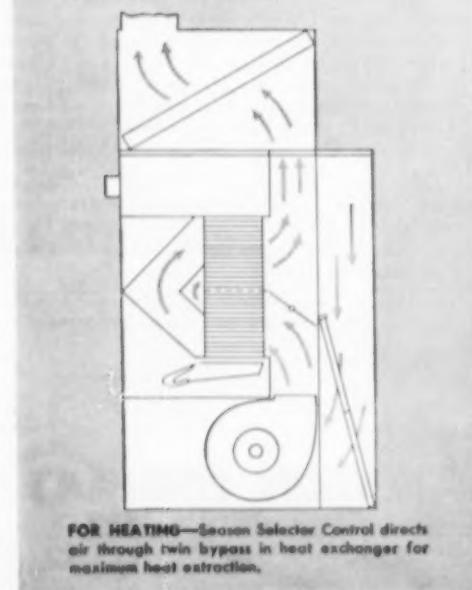
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NEW Win-Sum^{matic}



FOR COOLING—Season Selector Control allows straight air flow from blower to cooling coil, bypassing the heat exchanger.



FOR HEATING—Season Selector Control directs air through twin bypass in heat exchanger for maximum heat extraction.



The only combination with Season Selector and Pride O' Yard waterless

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Exclusive "Pride o' Yard" Compressor-Condenser is low, sleek, beautiful. Completely outmodes all other units of its type. Powerful—operates with outside temperatures to 125° F. Completely waterless, uses only air and electricity. 2, 3 and 5 HP sizes.



ALL-NEW PRIDE O' YARD COMPRESSOR-CONDENSER exhausts air out top instead of sides. Protects growing things nearby from hot blasts of exhaust air. Only Janitrol has it!

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Air Conditioning Manager

JANITROL HEATING & AIR CONDITIONING DIVISION
COLUMBUS 16, OHIO

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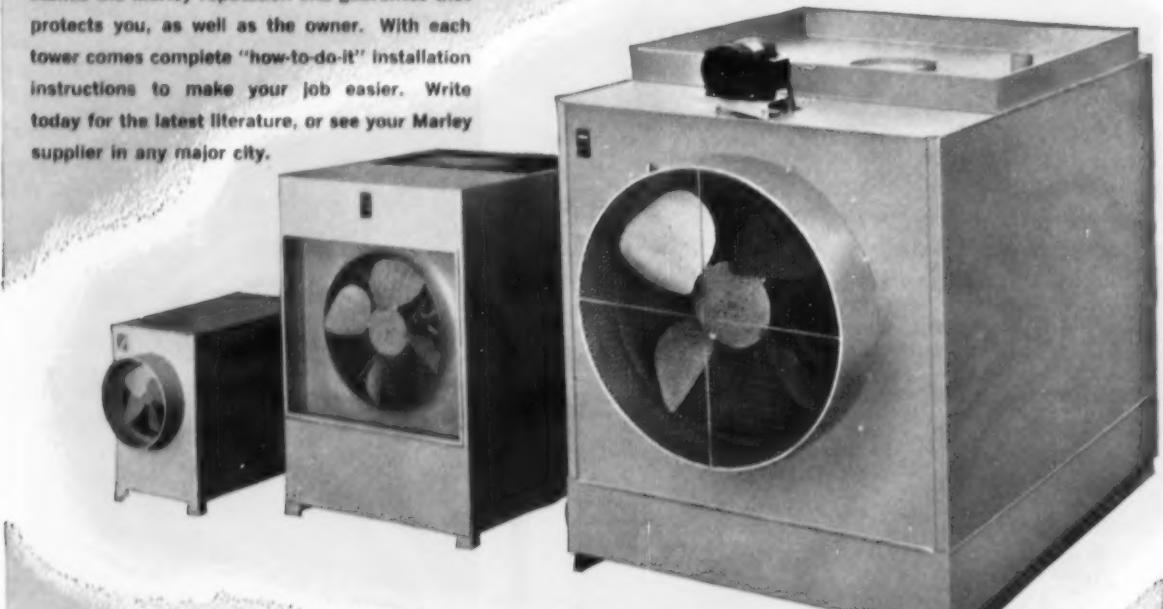
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"Nothing cools as well as water . . . nothing cools
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The Marley Company

Kansas City, Missouri

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ON THE
Booming Florida Scene
DRAYER-HANSON AIR CONDITIONING

MORE



Seville Hotel, Miami Beach. Architect: Melvin Grossman/Air Conditioning Engineer: Sam L. Hamilton.

AND MORE



Hollywood Beach Hotel, Hollywood, Fla. Architect: Melvin Grossman/Engineers: Sennett Engineering.

AND MORE



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AND MORE



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**HEAVY-DUTY
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Right Angle Drills

Angle-head swivels full 360°, lockable in any position. Removable for straight-on drilling.



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3 SPEEDS — Straight-on, Low, High

Ball and Roller Bearings throughout.
Weight only 9 lbs.

Model	RPM Straight- on	RPM Low Side	RPM High Side
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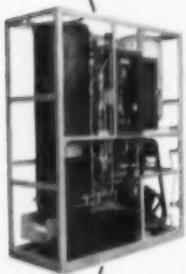
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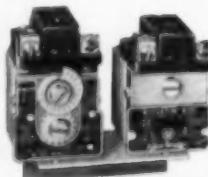
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MOTOR CONTROL**



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Across-the-line
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BULLETIN 700
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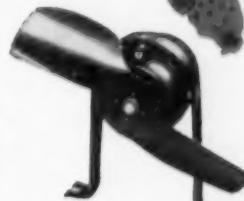
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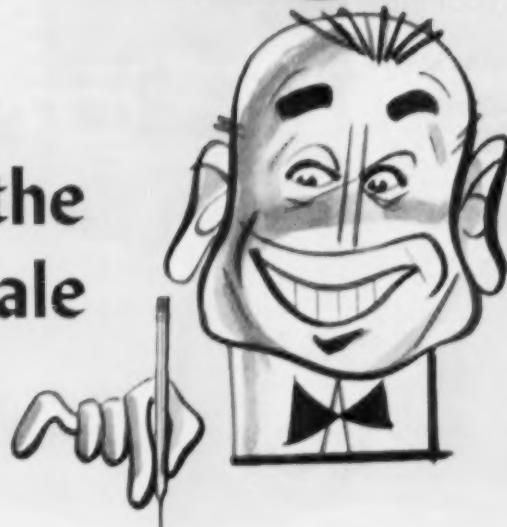
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to close the
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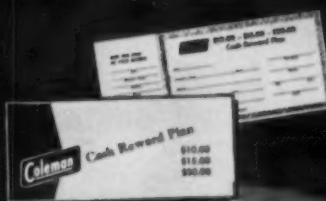
Use these **Coleman** local promotions to
BUILD A LIVE PROSPECT LIST

Plan NOW for a boom year in

cooling

Brand new approach!

Invite the home owner prospect to be his own "Comfort Engineer" and save \$50 on the installed price of his Blend-Air system. Once he earns his \$50 credit certificate, you KNOW you've got a live prospect. Program includes survey forms, yardsticks imprinted with your name, credit certificates, co-op ads.



Tested, proved
 year-round "use-the-user" campaign enlists the aid of satisfied Blend-Air customers and others in searching out new prospects.

plus . . . many other ideas, ads, displays and direct mail. Tie-ins with national advertising in LIFE, Saturday Evening Post, Sunset Household and Small Homes Guide.

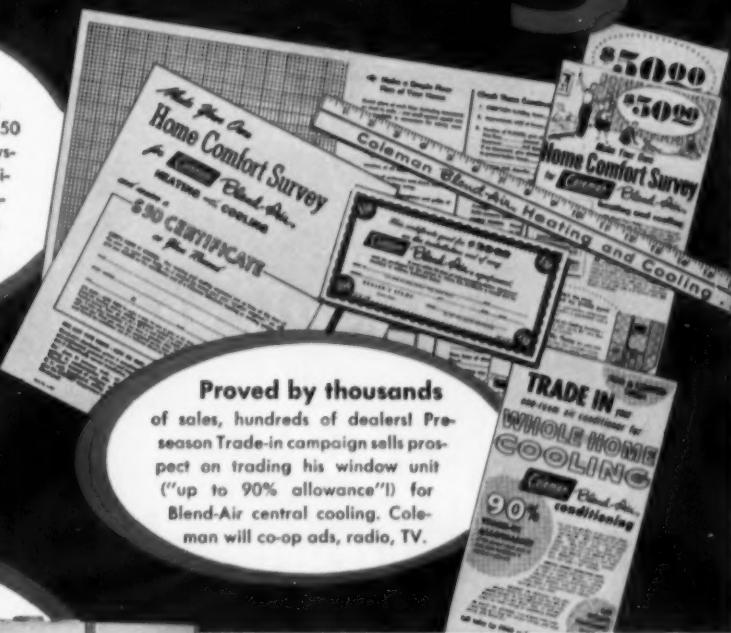


COLEMAN SINCE 1900

—makers of lamps, lanterns, camp stoves, home heating and air conditioning.

COLEMAN
Vit-Rock
 water heater...

backed by 10-year warranty and EXCLUSIVE \$500 Bond . . . strongest guarantee in the industry! Only Coleman has the rock lining that can't rust!



Proved by thousands
 of sales, hundreds of dealers! Pre-season Trade-in campaign sells prospect on trading his window unit ("up to 90% allowance") for Blend-Air central cooling. Coleman will co-op ads, radio, TV.

Use Blend-Air EXCLUSIVES to close more sales!

- ONLY COMPLETELY PACKAGED SYSTEM . . . pre-fabricated at factory to reduce layout time, eliminate costly shop work. • INSTALLS IN HALF THE TIME — smaller 3½-inch ducts save labor and inventory.
- COMPLETE LINE of Vertical and Plenum Coolers to install with any heating. • BEST HUMIDITY CONTROL with exclusive Coleman blenders. • LOWEST COST COOLING to operate with exclusive Air-Mist evaporative condenser.

MAIL COUPON TODAY for complete information!

The Coleman Company, Inc.
 Dept. CRA-160, Wichita 1, Kansas

Gentlemen: Please send me complete information on Coleman Blend-Air cooling and the 1956 Coleman local promotions. I sell gas or LP-gas, oil heating equipment.

Name _____
 Firm Name _____
 Address _____
 City _____ Zone _____
 State _____

Circle No. 18 on Reader Service Card



DON'T PLAY THE SHELL GAME WITH COMPRESSORS!

THIS SERIAL PLATE

SERIAL NUMBER

56 432772

TP

13371-3

A5 V115

HP $\frac{1}{3}$

S3414

CY 50/60 AMP 5.5

LRA 23.0

BILL OF MATERIAL

tells you exactly what is under the shell
of each

Tecumseh
HERMETIC



COMPRESSOR

Playing a guessing game with compressors can lead to costly call-backs and dissatisfied customers. The compressor selected by the original equipment manufacturer is engineered for that job and should be replaced by a like model or authorized parts. That is why it is important to check the serial plate. It is the only way you can properly identify Tecumseh compressors and make sure you have the right compressor for your application.

Note in the above serial plate, the model number S3414, and the horsepower, 1/3 H.P. In the upper left-hand corner, the year of manufacture. Below this is the month, coded A for January through the alphabet to M for December, plus the day (1 is eliminated

because of the similarity to the Roman Numeral I). The compressor shown is a Model S3414, 1/3 HP, 115 V, 50/60 Cycle, built January 5, 1956. The bill of material number is the most important number on the serial plate and completely describes the compressor to us. It is necessary among other things, to determine the proper electrical components. With this information, your wholesaler can supply you with the exact replacement parts or the proper replacement compressor. Remember to check the serial plate and be sure!



The World's Largest Producer of
Compressors for the Refrigeration Industry

TECUMSEH PRODUCTS CO.

EXPORT DEPT.—P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Circle No. 17 on Reader Service Card

Marion, Ohio
Tecumseh, Michigan

Have you discovered why

SERVICEMEN NOW PREFER

Mortite

CAULKING CORD and CAULKING GUM

for every Sealing Job?

Acceptance Proves It! From coast-to-coast refrigeration service and maintenance men have discovered two great MORTELL products which give them price, convenience and quality advantages unmatched by any other compound on the market today. Now, sealing and caulking jobs are finished faster, better and at much less cost than ever before!

"Tool Kit" Size! Both Mortite Caulking Cord and Mortite Caulking Gum come in handy cylindrical containers—easily fit into any crowded tool box, large or small. These compact containers have been designed by working refrigeration servicemen to eliminate product waste resulting from flimsy, bulky packages.

THESE FACTS TELL THE DIFFERENCE!

MORTITE CAULKING CORD— $\frac{1}{16}$ " rope-like strands always retain the consistency of modeling clay. Non-staining, Mortite White in color—may be painted immediately after application. Three compact 8-strand 16-ft. rolls can be unwound one or more strands at a time without unwinding entire roll.

MORTITE CAULKING GUM—Provides the perfect answer for the serviceman who needs a bulk caulking compound to hand mould into beads, wads, gaskets, etc. One pound slug ($2\frac{1}{2}$ " x 6") never cracks or hardens—adheres to any clean, dry surface through normal temperature ranges.

Mortite Caulking Cord or Mortite Caulking Gum will do the job better than your present caulking compound at a fraction of your present cost. Write today for complete information about these two products and the complete line of Mortell refrigeration products.

J.W. MORTELL COMPANY

Makers of Famous Mortite Tape and Mortite



*Mail
Coupon
Today!*

J. W. MORTELL CO.
553 Birch St., Kenosha, Wl., Dept. S
O.K! Send me full information about the
complete line of Mortell refrigeration
products.

I'm a _____ Jobber _____ Dealer

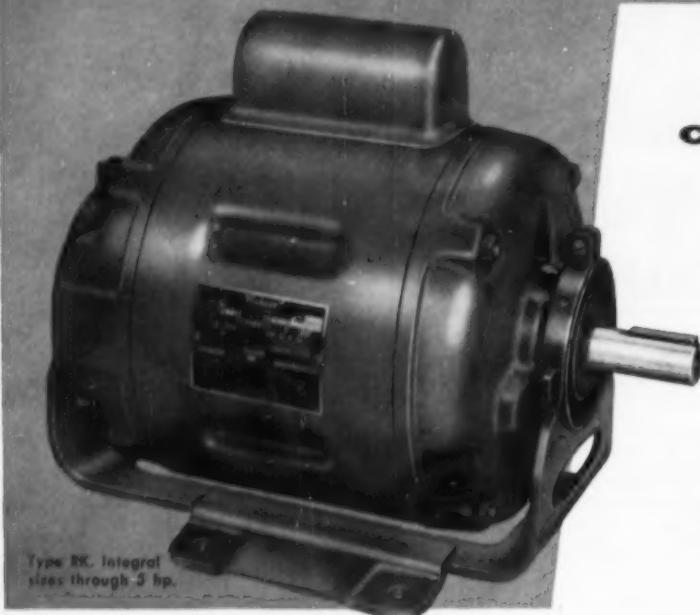
Salesman

Name _____

Address _____

City _____ State _____

WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY



Type RK. Integral sizes through 5 hp.

choose these
smaller,
lighter,
motors...
for
modern
equipment

For years Wagner motors have been the first choice of many leading manufacturers of air conditioners, refrigerators, freezers, water pumps and motor-driven tools. They meet the requirements of many other similar applications because of their high starting torque and low starting current.

Now these Wagner motors are lighter in weight and smaller in size. This means that you can design smaller motor housings—build lighter motor mountings. Wagner motors are easier to handle and easier

to stock because they take up less space.

And these motors offer low maintenance costs—only a minimum of servicing is required—they give many years of reliable service with unusual freedom from vibration and noise.

Available in repulsion-start or capacitor-start types—open or totally-enclosed—sleeve or ball bearing—with rigid or resilient bases or machined endplates for flange mounting. Write today for Bulletin MU-185 which gives complete information.

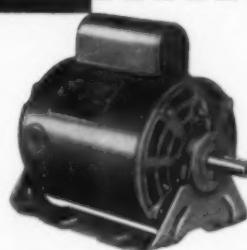
A Complete Line—Single-phase and Polyphase Motors



Type RP. Polyphase fractional horse-power motors. Available in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{3}{4}$ hp ratings. Rigid or resilient base—sleeve or ball bearing.



Type RA. Repulsion-start induction-run single-phase motors. For applications requiring high starting torque. $\frac{1}{2}$ to 15 hp.



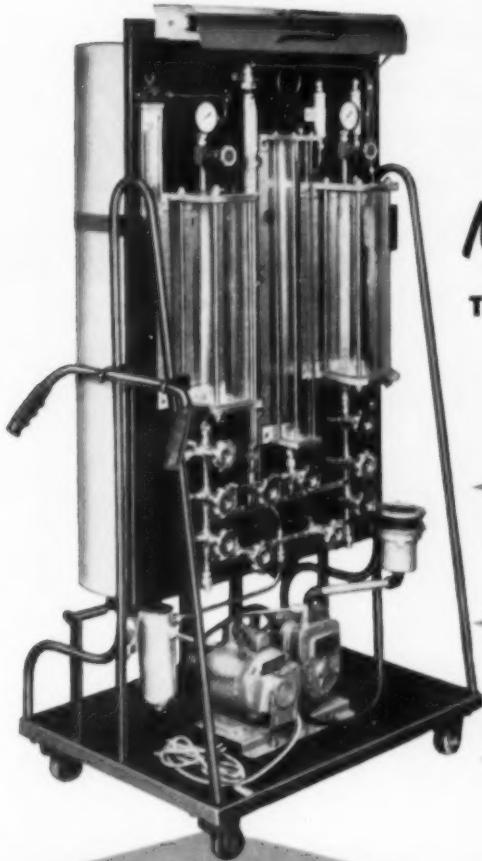
Type RK Capacitor-start. $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{3}{4}$ hp... sleeve or ball bearings. The resilient mounting offers unusual freedom from vibration and noise.



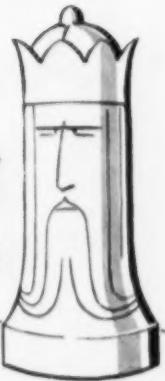
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS-AIR AND HYDRAULIC

Wagner Electric Corporation
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES



MAKE THE MOVE TO BETTER VACUUM SERVICE!



FOR THE SERVICE ENGINEER,
SERVICE SHOP

KINNEY PORTABLE
SERVICE STATIONS

MEET THE EXACTING CHARGING
SPECIFICATIONS SET BY ORIGINAL
EQUIPMENT MANUFACTURERS

FOR ALL TYPES OF REFRIGERA-
TION AND AIR CONDITIONING
EQUIPMENT

MOBILE UNITS OFFER
PRODUCTION-LINE PERFORMANCE
DURING RECONDITIONING

HIGH PRECISION VACUUM SYS-
TEMS ASSURE ADEQUATE EVAC-
UATION AND DEHYDRATION

INTEGRAL DESIGN INCLUDES

VISIBLE CHARGING OF
REFRIGERANTS

PROVISION FOR ADDITION
OF SUPPLEMENTARY LIQUIDS

Kinney Model KC High Vacuum Pump
Freon cylinder holder

Calibrated charging board
Vacuum manifold

*Clip the coupon
to your letterhead and

**MAIL
TODAY**

To make your servicing more profitable, consult Kinney.
District offices in Baltimore, Chicago (La Grange), Cleveland,
Detroit, Houston, Los Angeles, New Orleans, New York,
Philadelphia, San Francisco, and St. Louis are all
competently staffed to discuss any vacuum problem.

Consult one of these offices, or send for brochure which fully
describes the Kinney Portable Service Station and Accessories.

KINNEY MFG. DIVISION
THE NEW YORK AIR BRAKE COMPANY



3618 WASHINGTON STREET • BOSTON 30 • MASS.
INTERNATIONAL SALES OFFICE, 90 WEST ST., NEW YORK 6, N.Y.

• Please send Brochure describing Kinney Portable Service Station
and Accessories.

Name _____

Company _____

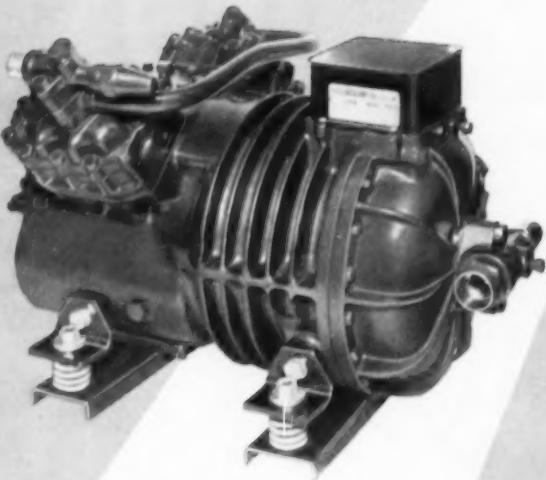
Street _____

City _____

State _____

DEPENDABLE PERFORMANCE

Assured... *Servel* WHEN IT'S POWERED BY THE NEW **ADVANCED SUPERMETIC®**



Compact, unusually quiet, full capacity — the new SERVEL ADVANCED SUPERMETIC POWER UNITS are super-right for remote-type or self-contained fixture applications.

There's a choice of sizes from $\frac{1}{4}$ through $7\frac{1}{2}$ HP. High back pressure models for air conditioning, water cooling, bulk milk and beverage cooling. Low and medium back pressure models for a wide range of commercial refrigeration requirements.

SERVEL POWER UNITS can be mounted on any flat surface . . . using a minimum of space. Suction-cooled motors require no water connection to the compressor. Simplified electrical connections reduce installation costs.

NOW — AT NEW LOW PRICES — also complete condensing units for expansion valve or capillary tube type systems. Hermetically sealed with the latest built-in features to give you superior performance, more dependability. Write for full data NOW!

SERVEL, INC., Commercial Refrigeration Division, Evansville 20, Ind.
INTERNATIONAL DIVISION, 19 RECTOR STREET, NEW YORK, N.Y.

Servel

THE NAME TO WATCH FOR GREAT ADVANCES
IN REFRIGERATION AND AIR CONDITIONING



SQUARE D *Reduced Voltage* STARTERS

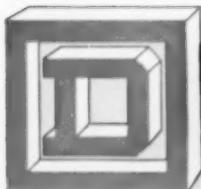
One of these **4** types will meet your requirements...best

- Is minimum motor current inrush your primary consideration?
- Is it reduced starting torque? • Or maximum smoothness in acceleration?
- Is cost an important factor?

With these four types Square D can meet any reduced voltage starter requirement—exactly.

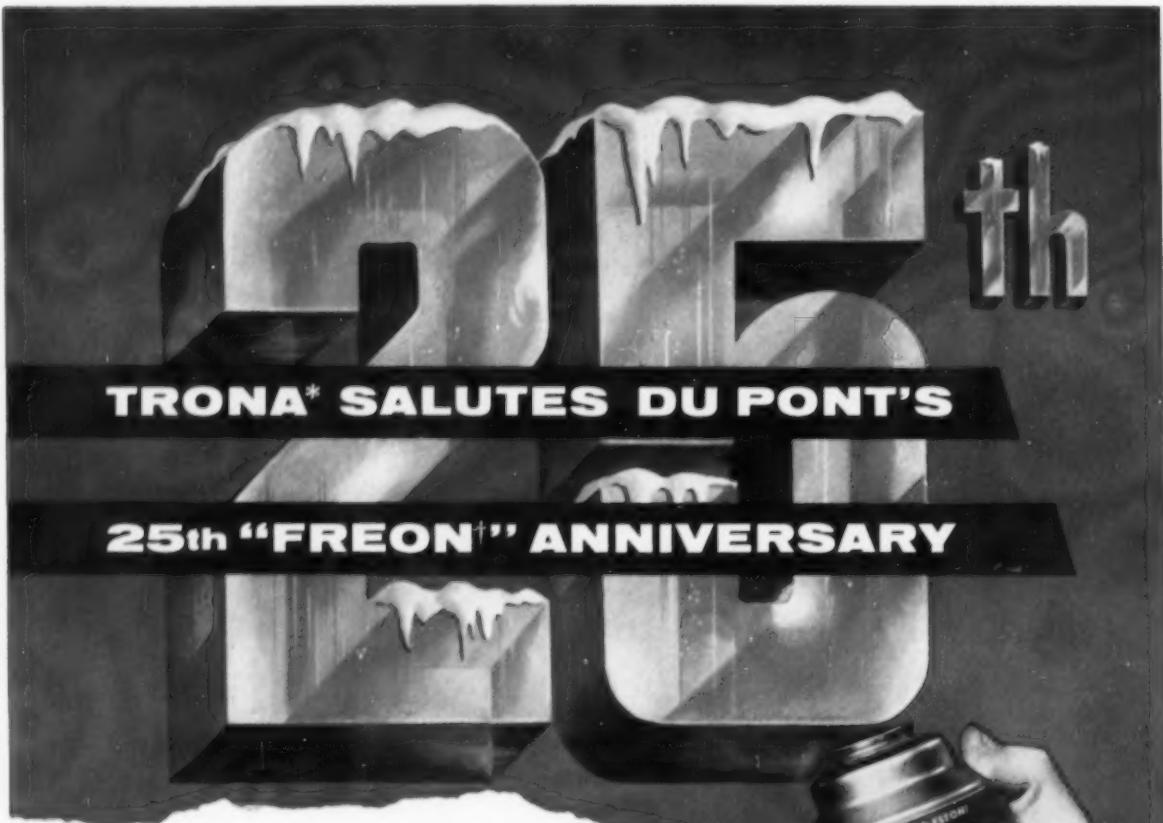
*Write for Reduced Voltage Starter Bulletins. They give complete details.
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.*

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS



SQUARE D COMPANY

Circle No. 24 on Reader Service Card



...contributing to "FREON" leadership
with national distribution
in dependable and economical

Charg-A-Can[®] PACKAGED REFRIGERANTS

This year Du Pont celebrates its first quarter-century of producing "Freon" for the refrigeration and air conditioning industry. Since January 13, 1931, the ever-widening acceptance of "Freon" has been a tribute to the pioneering research and product development that has made this safe, non-toxic and non-flammable refrigerant the leader in its field. Today, the Refrigeration Department of American Potash & Chemical Corporation is proud of its teamwork with Du Pont as a leading national distributor of "Freon" products — teamwork that combines trade-knowledge, technical service, better packaging and wider distribution so necessary in a dependable source of supply.

WHOLESALEERS IN ALL PRINCIPAL CITIES.



REFRIGERATION
DEPARTMENT
NORTHERN
DU PONT CHEMICAL DIVISION

American Potash & Chemical Corporation

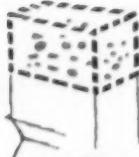
100 PARK AVENUE • NEW YORK 16, NEW YORK

100 PARK AVENUE • NEW YORK 16, NEW YORK

Circle No. 25 on Reader Service Card

**Crystallize your future TODAY
with an**

**EXCLUSIVE
FRANCHISE**



MOST SANITARY UNIT MADE!

New ice is produced at TOP of the CHIP-FREEZE unit so that there is no possibility for accumulation or decay of old ice. As you draw ice from lower part of upper section of sanitary, stainless steel storage bin, new ice is then produced at the top of the storage bin. Most equipment today has ice storage section at bottom of unit; thus, scum and dirt formations in that section contaminate fresh ice easily.

6 EXCITING NEW COLORS!

Today, eye appeal is sales appeal! Choose from six new decorator colors to harmonize with any interior; anywhere, anywhere! Space-saving cabinet design in beautiful hi-bake enamel color schemes makes CHIP-FREEZE unit adaptable for any location!

SAVINGS—SAVINGS—SAVINGS

Saves up to 95%! Imagine, 540 LBS. PER DAY—ice Rakers for as little as 2¢ per bushel or 6¢ per hundred lbs. (depending on local power and water rates)! Pay only for the ice you need. Fills itself automatically as ice is used. Mechanism is easily accessible from front and rear. Machine turns itself on and off.

EYE APPEAL, SALES APPEAL, ICE APPEAL for:

- Supermarkets • Restaurants • Dairies
- Bakeries • Hotels • Fish and poultry markets
- Fresh produce markets • Florists • Hospitals
- Soda Fountains • Retail Stores • Clubs

COCORA Products
COLD CORPORATION OF AMERICA
Manufacturers of Ice Making Equipment
1371-89 N. North Branch St. • Chicago 22, Ill. • MI 2-6816



for
Chip-Freeze

AUTOMATIC ICE FLAKER

Here is the line of trouble-free ice-making equipment you've asked for . . . with new scientific innovations that will make sales history!

**NO
DEEP REACHING!
Sparkling pure chipped ice is always at your
WAIST LEVEL!**



- Priced below competition! (Nationally advertised.)
- Fully automatic . . . (featuring new monostucture ice-making assembly.)
- Sales-tested selling plant! . . . (We supply you with leads, tool)
- Maximum output guaranteed! (Ideal for any type of water system.)
- Low installation cost . . . as easy as "A-B-C" to maintain!

EXCLUSIVE PROTECTED TERRITORIES STILL AVAILABLE. Write, wire or call today!

COLD CORPORATION OF AMERICA

CRAC

1371-89 N. North Branch St.
Chicago 22, Illinois

Gentlemen:

I am interested in knowing more about "CHIP-FREEZE" automatic ice Rakers.

Mfg. Rep. Distributor Dealer

Others, please specify _____

Name _____

Firm _____

Address _____ Phone _____

City _____ Zone _____ State _____



Now, you can handle any drying job if you stock just 4 Ansul Dryers and 8 Fittings

There isn't a drying job going that you can't handle with the Ansul line. What's more, you automatically *cut your dollar investment in truck stock* when you standardize on this advanced line. Equally important, you save valuable time by eliminating trips to pick up parts.

Once one of the 8 Ansul T-Connectors is permanently placed in the liquid line, you can install *any one* of the 4 Ansul T-Flo Dryer Cartridges (see above). These twelve parts give you 32 possible installation combinations. The T-Connectors are available in $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " sizes for both flare and soldered installations. Here is flexibility that no other dryer line can match. For the largest installations Ansul dryers can be easily manifolded to provide unlimited drying capacity, eliminating the need for stocking outsize, infrequently used dryers.

Changing a T-Flo Dryer is the easiest thing in the

world. Remember, line breaking is not necessary. Just unscrew the old dryer and replace it with the new. Hand tightening will give you a leakproof seal. And you can install the T-Flo Dryer in any position, up, down or sideways.

Ask your Ansul Wholesaler about the new DRY-EYE fitting. The window changes color to let you see if the system is wet or dry. This is the most important servicing aid ever developed by Ansul — there's nothing else like it on the market. THE ANSUL CHEMICAL COMPANY, Marinette, Wis.



ANSUL

Circle No. 27 on Reader Service Card

NO WONDER

1,000,000 AMPROBES HAVE BEEN SOLD!

"We found the Amprobe snap-around volt ammeter to be the best type of equipment available to quickly analyze electrical troubles. Amprobe enables our servicemen to do a better job more efficiently than any other equipment we have used," says S. J. Janczarek, Service Engineer for Refrigeration Service Inc., the Frigidaire Sales & Service representative in Detroit, Michigan.

Servicemen everywhere like the way Amprobe eliminates guesswork — speeds up servicing — saves time and money on the job.

No other volt-ammeter boasts such universal acceptance. There's an Amprobe for every job, every budget: from 10 amp and 250 volts to 1200 amp and 600 volts AC; from \$19.85 to \$67.50. See them at your jobber's today.



Amprobe Model 300



Amprobe Jr.

AMPROBE
world's most popular snap-around volt amp tester

MAIL COUPON FOR FREE SERVICE BULLETINS

Pyramid Instrument Corp.

Dept. A-56, Lynbrook, New York

Please send me bulletins checked:

Know your
UL wiring
standards
for room
units

Troub-
leshooting
electric
motors

14 ways a volt-
ammeter can
boost your
service
profits

NAME.....

ADDRESS.....

COMPANY.....

CITY..... ZONE..... STATE.....

Circle No. 28 on Reader Service Card

ABOUT PEOPLE

Bud Wilks has been appointed vice president in charge of the



Special Products Div. of C. Q. Sherman Associates, Inc., Mt. Vernon, N. Y. He formerly was sales manager of the Sherman company. Wilks' initial

efforts will be in support of the recently introduced "Dust-magnet Model B" electrostatic filter for commercial refrigeration condensers.

Meyer Rosen has been elected a vice president of United States Air Conditioning Corp. He will be in charge of the firm's Floral City Heater Div. in Monroe, Mich. Rosen had served as president of Floral City Heater Co. from 1935 until its recent acquisition by Usairco.

Pennsylvania Salt Mfg. Co. has announced the appointment of



Arnold E. Blitz to its technical sales staff to direct the introduction of the company's new line of refrigerants. Known as Iso-trons, these

new products will be produced in a new plant at Calvert City, Ky., scheduled for completion late this year. Blitz joined Pennsalt in 1951 and served successively as sales manager and sales supervisor in the Metal Processing Chemicals Dept. Earlier he was sales manager

for the Marietta Metal Products Corp.

Ansul Chemical Co. announces the appointment of **John Bopp** as manager of its new products division, refrigeration sales development department. Bopp, who has been with Ansul 16 years, succeeds Lou Wallace, who recently resigned to join Russell Sales Co., Ansul's refrigeration distributor on the West Coast.

Wolverine Tube, Div. of Calumet & Hecla, Inc., has made five sales personnel changes. **Ralph C. (Bud) Wells** and **William R. Morrisey** have been named sales representatives. Wells will



R. C. Wells

W. R. Morrisey

cover northern California and Morrisey will represent Wolverine in Pittsburgh and surrounding area. **Bob L. Roberts**, **Ralph E. Seaton**, and **Raymond B. Davis** have been appointed technical sales representatives. Roberts will work in the Philadelphia area; Seaton will represent the division in New York, New England, and northern New Jersey; and Davis will coordinate his activities in the Cleveland area with Frank H. Grace & Co., Wolverine manufacturer's representative.

James A. Comstock who went to work for Acme Electric Corp. 26 years ago as chief engineer, has been elected chairman of the board of directors. Previously he had served the company as president and vice president. The newly elected president of the company,

Wm. E. Wilson, joined the company in 1945 as sales manager, and later served as vice president in charge of sales and executive vice president.

Frank Philabert, former president of Chemical Solvent Co., Birmingham, Ala., died Feb. 23. Philabert had gained international recognition for his research and development in the fields of water and

brine chemistry. The products manufactured by his company were of his own origin, among them being Soltex, Ultra Soltex and Distilex. He founded Chemical Solvent Co. in 1935 and was president until his retirement in 1955. He was succeeded in the presidency by Noel Burkey, Jr., and in the management of the company by his daughter, Olivia P. Burkey.

Airtemp Div., Chrysler Corp., has announced the promotion of

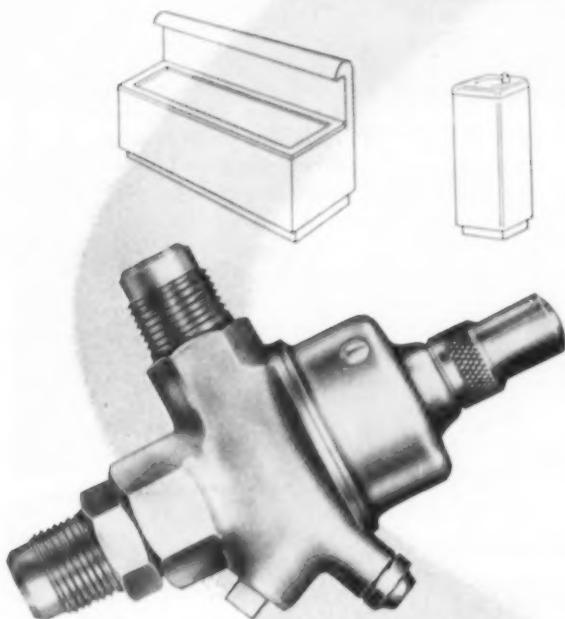


J. C. (Jack) Davidson to the newly created post of assistant sales manager—residential heating and cooling. Davidson, with a 20-year air conditioning and heating background, was manager of Airtemp's application-engineering department for the past two years, and has been associated with the division since 1947.

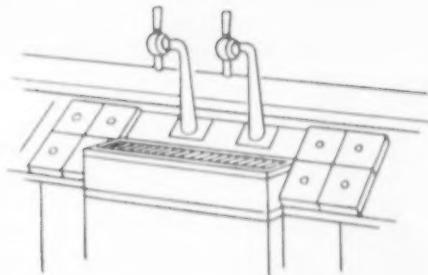
Freez-King, Inc., has announced the appointment of two sales executives. **Mark M. Evans** has been named Freez-King sales manager. Evans comes to Freez-King from Mills Industries, Inc. having served

REFRIGERATION PRESSURE REGULATORS that . . .

Prevent Cooler Freeze-Ups Prevent Motor Overload



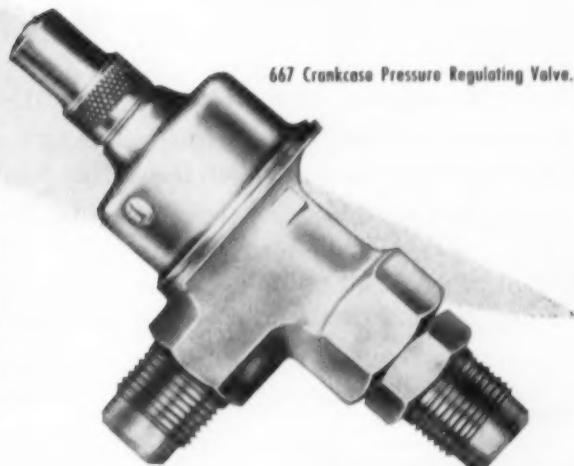
668 Evaporator Pressure Regulating Valve



Here's the solution to costly freeze-ups of water cooling equipment: the Detroit 668 Evaporator Pressure Regulating Valve.

The 668 prohibits freeze-up of water coolers, beverage coolers, and other water cooling equipment by preventing the suction pressure from going below the freezing point.

The 668 will accurately maintain evaporator pressure in accordance with its setting, and thereby accomplish individual evaporator control in single or multiple systems.



667 Crankcase Pressure Regulating Valve.

The Detroit 667 Crankcase Pressure Regulating Valve adds to the life of compressor motors by preventing overload. The 667 valve does this by holding back the pressure from the crankcase, regardless of the pressure in the evaporator. There is no overloading because the pressure cannot exceed the point at which motor overloading occurs, when the 667 is set to maintain the proper crankcase pressure. This valve is also ideal for use as the re-expansion device in hot gas defrost systems.

Cooling units equipped with Detroit 668 and 667 valves operate smoother, longer, and more efficiently.

For full information contact your Detroit Controls Wholesaler, or write for Bulletin 260-A.

DETROIT CONTROLS CORPORATION
5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN - Standard



Representatives In Principal Cities • Canadian Representatives:
RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg.



AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES
& AIR CONDITIONING • MAY, 1956

most recently as zone sales manager, **Martin E. Stiller** has been named assistant to the sales manager of Freez-King. Stiller most recently was acting sales manager in the freezer division of Mills Industries.

Hardy H. Austin has been promoted to superintendent of production for the commercial refrigeration division of Servel, Inc. Austin,

who started at Servel 23 years ago as a compressor assembler, had been assistant superintendent of production since 1953.

Mueller Climatrol Div., Washington Corp. has made five sales promotions. Those elevated were: **Elmore T. Scheek**, former Milwaukee area sales manager, to regional sales manager of Wisconsin, northern Illinois and upper

Michigan; **M. H. "Tommy" Thomas** as regional sales manager over Indiana, Ohio, western Pennsylvania and most of Michigan; **Richard B. Schmidt** to Milwaukee area sales manager; **Chester J. Vopal** to manager of traffic and warehousing; and **Fred Heise** to manager of repair parts department.

American Gas Machine Co. has made two sales appointments for Scotsman Ice Machines. **C. E. Reed** was named national service manager, and **L. A. Burbank**



SEA GULLS HAVE A GREAT AFFINITY FOR WATER

These strong, rugged travellers frequently fly great distances in search of new water spots, from which they take their food and on which they often float and roost.

THAWZONE, the travelling dehydrator, also has a powerful affinity for water...searches it out in refrigeration systems and destroys it wherever found.

THAWZONE DOES MANY OTHER THINGS:

1. Actually destroys moisture...not a mere anti-freeze.
2. Scavenges oxygen...helps to overcome the harmful effect of traces of oxygen which may remain in a refrigeration system after the usual purging.
3. Cannot cause pressure drop.
4. Does not release moisture when temperature changes.
5. May be used in open or hermetic units containing any of the "Freons", methyl chloride, methylene chloride or isobutane.
6. Costs only about 8 cents per lb. of refrigerant treated. Used in minute amounts.

Why don't you try a 1 oz. bottle of Thawzone? Also available in 4 oz. and pint bottles. Call your wholesaler.



THAWZONE

The Only Product That DESTROYS Water.
and Reaches All of it

Circle No. 30 on Reader Service Card

30

Stewart Industries, Inc.

(Formerly HIGHSIDE CHEMICALS CO.)

4 Colfax Avenue, Clifton, N. J.



C. E. Reed

L. A. Burbank

was appointed regional sales manager for the northeastern part of the country. Reed formerly was service manager for Washington Refrigeration Co. Burbank was sales engineer with Melchoir Armstrong Dessau Co., Inc., for nine years.

Robert C. White has been named chief product specialist for

Carrier Corp.'s machinery and systems division. Prior to his new appointment, White was senior sales engineer in the division's Chicago district office. He will operate out of the company's Syracuse headquarters.

Richard K. Chapman has been appointed branch manager of the Detroit office for the Uni-

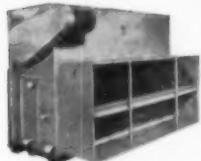
**There's no "or Equal"
when you select...**

BUSH

Air Conditioning Units

EXCLUSIVE INNER-FIN DESIGN • THE INDUSTRY'S MOST COMPLETE LINE

'AH' AIR HANDLING UNITS



Available in 12 models from 800 CFM to 28,800 CFM. Floor-standing vertical and ceiling-hung horizontal models with direct expansion, water or steam coils. Face and by-pass damper sections, mixing boxes, spray type humidifiers and filter sections available for all units. Models AH-10 to AH-32 available with Inner-Fin coils.



'MZ' MULTIZONE UNITS



Available in 9 sizes covering a range from 2,560 CFM to 28,800 CFM. Multizone Units parallel the standard Bush HAH Air Handling units, using the same proven blower sections and accessories such as filter sections and mixing boxes. Zone dividers may be arranged as desired — vertical, horizontal or a combination of both. Entire interior is well insulated and undercoated. Units can be shipped sectionally when this is desired to facilitate installation.

'CR' REMOTE AIR CONDITIONING UNITS



Provide quiet, economical year-round air conditioning for all types of multi-room buildings. Units are available in vertical floor and horizontal ceiling models . . . feature individual room control . . . are easily incorporated in new or existing buildings.

DX WATER AND STEAM COILS



Bush Water, Steam and DX Coils are supplied in standardized and matched sizes. Singly or in combination, can be arranged to fit practically any installation. Constructed of collar spaced serrated aluminum fins bonded to copper tube, staggered in direction of air flow.



Request Catalogs containing complete specifications on units shown.

The BUSH line of air conditioning equipment includes units of all types to meet your every requirement. For single-source simplicity, select quality-constructed, advanced design BUSH units. And for capable engineering or specifying assistance, contact your BUSH sales engineer.

'IDX' INNER-FIN AIR CONDITIONING COILS



Available in standard stock sizes 2, 3, 5 and $7\frac{1}{2}$ tons for simplified selection. Inner-Fin construction permits use of smaller size coil for any desired capacity. Shallower depth requires less fan horsepower. Coils completely flanged for easy installation.

'CC' COMFORT CONDITIONERS



Engineered and constructed for use in the conditioned area. Motors mounted inside casings. Attractive insulated cases, noiseless operation. Available with direct expansion coils of Inner-Fin construction. Where steam coils are desired, inner tubes of DX coil are specially circuited. Water cooling or heating coils also available.

BUSH MANUFACTURING CO.

WEST HARTFORD 10, CONNECTICUT • RIVERSIDE, CALIFORNIA

tary Equipment Div. of Carrier Corp. Before joining Carrier in 1953, Chapman was with the Atlantic Refining Co. as an industrial engineer. Prior to his new appointment, he served as self-contained equipment manager in the Philadelphia district office.

Richard W. Smith has been named director of advertising of American Air Filter Co. In his new capacity, he will be directly

responsible for the advertising activities of all eight sales divisions of the company. For the past five years, Smith has been an account executive for Doe-Angerson Advertising Agency in Louisville.

coast as district representative and, until his new assignment, as district manager.

E. J. Barnell has been appointed manager of Foamglas low



temperature insulation sales effective Feb. 1. Barnell, who has been associated with Pittsburgh Corning since 1948 as a sales representative in

Indianapolis, San Francisco and Atlanta, will be in charge of sales of the company's cellular glass insulation in all refrigerated applications. He will be located in the firm's headquarters offices in Pittsburgh.

Robert P. Young has been named manager of the New York district office of Peerless Pump Div. Food Machinery and Chemical Corp. He succeeds F. W. McCann, who has resigned. Young had previously been a Peerless sales engineer, with headquarters in Pittsburgh.

Hermann C. Hoffmann has been named general sales manager

of Carrier Corp.'s Machinery & Systems Div. Hoffmann will have general responsibility for sales of large air conditioning and refrigeration equipment.

Former manager of the company's district office in Dallas, he later was appointed assistant general sales manager.

M. E. Kelley was recently appointed sales representative for Iowa and surrounding states by

ONLY ONE THING FASTER THAN SODAMASTER SALES . . .
SODAMASTER'S DISPENSING SPEED

A SodaMaster can fill a six-ounce glass brim full of cool, sparkling carbonated beverage in five seconds. SodaMaster sales aren't that fast . . . not quite. However, dealers agree it is one of the fastest moving specialty items. The reasons for SodaMaster's successful sales story are (1) Each salesman carries the proof with him—documented statistics and data—that a SodaMaster unit pays for itself in amazingly short order; and (2) SodaMaster is the efficient answer to major problems facing any customer who serves mixed or soft drinks. When a sale is completed the SodaMaster is easily installed . . . easy to operate. Prospects for SodaMaster equipment are found in practically every block . . . neighborhood taverns or cocktail lounges, restaurants, hotels, sports arenas, public recreation and entertainment spots.

THESE SODAMASTER FEATURES STIMULATE CUSTOMER INTEREST, CLOSE SALES

- The identical beverages previously obtained from bottles—with carbonation equal or higher.
- As much as 65% savings on bottled flavors, 96% savings on club soda.
- A variety of flavors, instantaneously, at the finger tips.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser SodaMaster, Mix-Monitor Faucet and Supercharger Carbonator Equipment.

Name _____

Address _____

City _____

State _____

West Coast Plant: 16028 S. Marquardt Ave., P. O. Box 142 Norwalk, Calif.
IN CANADA: GENERAL EQUIPMENT CORP., LTD., TORONTO, ONT.

Circle No. 32 on Reader Service Card



Circle No. 33 on Reader Service Card →

Mr. A. D. Nour, President, Nour Refrigeration Co.

Daytona Beach, Fla., REPORTS . . .

"Even Medium Size Dealers Can Cash-in on Carload Profits with Westinghouse Waterless Air Conditioners!"



NEEDS NO WATER

New Westinghouse Deliver "More"



Sold and Installed in 24 Hours!

Here's Tony Nour in action. Like many other progressive Westinghouse Dealers across the nation he's discovered that waterless units require a minimum of selling effort!

5 p.m. Thursday, March 15—Mr. and Mrs. R. P. Hammons get the facts and figures from Mr. Nour . . . convinced, they place their order!

5 p.m. Friday, March 16—Mr. Nour inspects the finished installation at the Hammons' home at 1185 No. Halifax Avenue, Daytona Beach. Thanks to Mr. Nour and Westinghouse the Hammons can look forward to years of trouble-free air-conditioned comfort.

WATCH WESTINGHOUSE!
WHERE BIG THINGS ARE HAPPENING FOR YOU

Air Conditioners Cooling Per Dollar!"

Read what Mr. Nour has to say:

"Personal comparison convinces us that Westinghouse units give more value per dollar than any other quality air conditioner on the market. Performance-wise they're simply unbeatable! Easy dealer financing and fast turnover, we feel, make carload economy practical for any dealer. What's more, our sales records prove this to be true!"

Look at these Westinghouse "bonus" features!

- **Low Cost Comfort**—your customers will get "more cooling per dollar" . . . complete home air conditioning at the lowest price in Westinghouse history!
- **Provides Year-Round Air Conditioning**—new waterless models link up easily with forced warm air heating systems . . . use existing duct-work for additional economy!
- **Uses No Water**—needs no plumbing, no expensive water tower installations . . . there's no water disposal problem!
- **Fully Rated**—delivers up to 20% more cooling capacity per unit . . . plenty of reserve power—for every room—during peak heat periods!
- **Easy Installation Indoors or Out**—doesn't waste valuable living space . . . installs in basement, utility room, garage or yard!
- **A Size For Every Need**—available in 2, 3, and 5 hp sizes!

Westinghouse Dealers get the "best deal"!

Any dealer regardless of size can profit with Westinghouse! You're backed with powerful national advertising . . . in newspapers, consumer magazines, on network radio and TV.

More important! There are even special allowances for local dealer advertising—*where it counts most for you!*

**Here's your opportunity to share in
PROFITS BY THE CARLOAD! Your local
Westinghouse Distributor will tell you how!**

CALL OR WIRE TODAY! DISTRIBUTOR LIST ON NEXT PAGE . .



Call or wire your nearest Westinghouse Distributor collect

ALABAMA

BIRMINGHAM
First Refrigeration Co.
177 S. 20th Street

MOBILE

Associated Equipment Co.
717 St. Joseph Street

ARIZONA

Fiesta Distributing Co.
21 East Durango Street

ARKANSAS

LITTLE ROCK
Fagan Air Conditioning Co., Inc.
900 Center Street

CALIFORNIA

BAKERSFIELD
The Southern Co.
605 Williams St.

FRESNO

Air Conditioning Sales, Inc.
7708 Tuolumne Street

INDIO

Frank Cavanaugh's Electrical Service
45-248 Jackson Street

LOS ANGELES 17

Comfort Distributors Corp.
1709 W. Eighth St., Rm. 1125

COLORADO

DENVER 4
T. C. Alexander
1100-08 Champa Street

CONNECTICUT

BRIDGEPORT 8
Air Conditioning Corp. of Connecticut
41 California Street

FLORIDA

MIAAMI
Westinghouse Electric Supply Co.
3400 N. W. 31st Street

TAMPA 1

Tampa Armature Works, Inc.
401 South Morgan Street

GEORGIA

ATLANTA
Raymond Distributing Co.
136 Rogers Street, N.E.

MACON

Air-Rite Products Co.
452 First Street

ILLINOIS

CHICAGO 44
Mid-States Air Cond. Equip., Inc.
6640 West Washington Blvd.

PEORIA 2

O'Brien Distributing Co.
100 Walnut Street

ROSEVILLE

D and F Supply Co.
604 South Main Street

INDIANA

EVANSVILLE
Evansville Electric Service, Inc.
1025 Reis Ave.

FORT WAYNE

Westinghouse Electric Supply Co.
New U.S. 30 & Meyer Road

INDIANA (Cont.)

GARY
G. W. Berkheimer, Inc.
1040 Washington St.

INDIANAPOLIS
G. W. Berkheimer Co.
610 South New Jersey Street

IOWA

DAVENPORT
Gierke-Burton Co.
210-212 E. River St.

DES MOINES
Heating Wholesalers Co.
107 S. W. Second Avenue

KANSAS

GREAT BEND
Wedell Electric Supply Co., Inc.
1209 Williams Street

WICHITA
Hill Electric Air Conditioning, Inc.
307 Laura Street

KENTUCKY

LOUISVILLE 4
Stewart Distributing Co.
1019 East Broadway

LOUISIANA

NEW ORLEANS 12
Equitable Equipment Co., Inc.
410 Camp Street

SHREVEPORT
The Dykes Co., Inc.
1012 Market Street

MARYLAND

BALTIMORE 15
Lloyd E. Mitchell, Inc.
4650 Reisterstown Road

MASSACHUSETTS

BOSTON 10
Carlson Equipment Co.
10 High Street

MICHIGAN

DETROIT 3
Temp-Matic Inc.
17320 Hamilton Avenue

GRAND RAPIDS
Westinghouse Electric Supply Co.
511 Monroe St., N.W.

MINNESOTA

MINNEAPOLIS 6
Thomas Air Conditioning Inc.
2478 Riverside Avenue

MISSISSIPPI

JACKSON
South Central Htg. & Plbg. Co.
3666 N. Mill St.

MISSOURI

KANSAS CITY 8
Nelson & Co.
1974 Oak Street

ST. LOUIS

Westinghouse Electric Supply Co.
6049 Fyler Avenue

SPRINGFIELD

Paul Mueller Co.
1616 W. Phelps

NEBRASKA

OMAHA 5
Nathan & Co.
4001 Leavenworth Street

NEVADA

RENO
Saviers Electrical Products Corp.
640 N. Sierra St., P.O. Box 531

NEW JERSEY

CAMDEN
Borsig Electric Co.
415 Broadway

IRVINGTON

Geiger Air Cond. & Refrig. Co., Inc.
1381 Springfield Ave.

NEW YORK

BUFFALO 2
Buffalo Electric Co., Inc.
75 W. Mohawk Street

JAMESTOWN

Sans Corporation
132 Blackstone Ave.

NEW YORK 10

Times Appliance Co., Inc.
363 Fourth Avenue

ROCHESTER 9

Vanas & Gethemeyer, Inc.
401 Webster Avenue

SCHENECTADY

Jim Tree Sales & Supply Co.
412 Warren St.

NORTH CAROLINA

CHARLOTTE
Air Conditioning Equipment Co.
P.O. Box 4095

WINSTON-SALEM

Walt-Turner Heating & Air Cond. Co.
487 S. Stratford Road

OHIO

CINCINNATI 2
The Kuehne Co.
1800 Gilbert Avenue

CLEVELAND 15

Unit Air Conditioners, Inc.
2336 Prospect Avenue

COLUMBUS 2

The Kuehne Co.
2572 High Street

TOLEDO 4

Air Conditioning Distributors, Inc.
4337 Garrison Rd.
P.O. Box 123
Station H.

YOUNGSTOWN 3

Carlson Electric Co.
121 E. Boardman Street

OKLAHOMA CITY

Air Engineering Inc.
26 N. E. 26th St.

PENNSYLVANIA

ERIE
Lakes Engineering Co.
1316 G. Daniel Baldwin Bldg.

PHILADELPHIA 31

Raymond Rosen & Co., Inc.
Parkside & 51st Street

PENNSYLVANIA (Cont.)

PITTSBURGH 1
Aircos & Heating Supply Co., Inc.
3811 Penn Avenue

WILKES-BARRE
AirCo Distributing Co.
29 South Washington Street

SOUTH CAROLINA

COLUMBIA
Clark Heating & Plumbing Supply Co.
2795 Commerce Drive

TENNESSEE

CHATTANOOGA
Tennessee Engineering Co.
Division of Lennon Co., Inc.
1516 E. Main Street

KNOXVILLE

Indoor Comfort Distributors Co.
520 Van Street

MEMPHIS 3
Associated Southern Industries
1161 Union Avenue

TEXAS

DALLAS
Trans-State Supply Co.
425 South Field

EL PASO
Fred A. Lankford
2901 E. Mission St.

HOUSTON
Star Steel Supply Co.
9411 Alameda

LUBBOCK
Homer G. Maxey & Co.
1611 Fourth Street

SAN ANGELO
Climate Engineering Co.
2329 Sherwood Way

SAN ANTONIO
Byrne, Inc.
1626 E. Houston St.

UTAH

SALT LAKE CITY 1
Williams, Cotton & Wilde
204 Drury Boulevard

VIRGINIA

NORFOLK
Stokely's Services, Inc.
4000 Colley Avenue

ROANOKE
Davis H. Elliott Co., Inc.
11-13 Naval Reserve Ave., S.E.

WASHINGTON, D.C.

Conglomerate Corp.
409 Tenth St., S.W.

WASHINGTON

SPokane 4
Warren Little & Lund
W. 607 Second Avenue

WEST VIRGINIA

CHARLESTON
Thresh Refrigeration Co.
1012 Virginia St., E.

WISCONSIN

MILWAUKEE 7
Layton Supply Co.
924 E. Russell Avenue

WATCH WESTINGHOUSE! WHERE BIG THINGS ARE HAPPENING FOR YOU

Viking Air Products Div., National-U.S. Radiator Corp. Kelley, who has been a sales engineer in the Iowa area for the past five years, will headquartered in Cedar Falls.

Harry L. Jobes has been named sales manager, Typhoon Heat Pump Co., Div. of Hupp Corp. Jobes will be in charge of residential and commercial sales. Before joining the company, he was assistant sales manager for Remington Corp. Prior to his new appointment, he was district manager.

Russell T. Walker has been appointed treasurer of National-U.S. Radiator Corp. He formerly had been secretary of New York Central Railroad Co., and had been associated with that company for over 14 years.

Clifford B. Woodward Jr. has been appointed manager of commercial engineering of General Electric Co.'s Weathertron Dept. Woodward will be responsible for application engineering and training, product service, and parts sales. He joined the company in 1950 as a field engineer.

Paul J. Steigerwald has been appointed territory representative in Cleveland for Detroit Controls Corp. Steigerwald has been with the corporation for the past year in the Cleveland east central regional office. He will represent the

entire Detroit line at the wholesale and original equipment manufacturer's level.

of air conditioning and refrigeration equipment.

Brewer I. Glenn has been promoted from service supervisor to zone sales supervisor of York Corp.'s midwest district, with headquarters in St. Louis. Glenn joined York three years ago, after having served as a service supervisor for a St. Louis manufacturer

Research Products Corp. has announced two new appointments to its sales force. **Harry J. Gilbert**, will headquartered in Atlanta, Ga., and serve the territory of Alabama, Georgia, Mississippi and Shelby County, Tennessee. **Lee A. Monty** will headquartered in Columbus, Ohio, and cover Ohio plus Wayne

HENRY

The most complete line in sizes and types for refrigeration and air conditioning manufacturers, contractors and service men.

VALVES



PACKLESS



WING CAP



AMMONIA

DRIERS



NON-REFILLABLE



CARTRIDGE

STRAINERS



ANGLE



"Y" TYPE

RELIEF VALVES

STRAIGHT-THROUGH
AND ANGLE



UV ASME
NB National Board
Certified

HENRY VALVE COMPANY

3215 North Ave. • Melrose Park, Ill.

Circle No. 34 on Reader Service Card

← Circle No. 33 on Reader Service Card

and Cabell Counties in West Virginia. Both men formerly worked in the sales department at the home office.

Several personnel changes have been announced by General Controls Co. **Charles V. Chapman** and **Henry L. Bryne** have been named field representatives. Chapman will work out of the Atlanta branch and Bryne will be located

in Philadelphia. **John Sensenig, Jr.** has been promoted to regional representative for the air conditioning and refrigeration controls division in Dallas. **Stanley J. Pachyn** has been named assistant sales manager for the industrial controls division in Skokie, Ill. **John W. Babeock** has been named manager of the New Orleans factory branch. **Richard J. Wickert** has been appointed field engineer for the Perfex Div., Milwaukee.

Duane G. Merrill has been appointed eastern regional manager of Acme Industries, Inc. Merrill joined Acme in 1947 as a sales engineer, becoming manager of the sales engineering department in 1950. Eighteen months later, he was chosen assistant sales manager. In 1954, he was named assistant to the general manager, followed by his appointment as manager of sales service. Merrill will make his headquarters at Acme's eastern regional offices in New York City.



HOW TO GET 230 Volts FROM A 208 Volt CIRCUIT

208 VOLTS
GOES IN HERE



228.8 VOLTS
COMES OUT HERE

As a quick and economical method of supplying normal voltage (220, 230 or 240 volts) single phase from available under voltage circuits (197, 208, or 214 volts) this series of transformers will solve many application problems. For example, the installation of air conditioning equipment in an office or commercial building, where only lighting circuit voltage is available may require the installation of a separate circuit connected from two legs of a power line; such connection providing 208 volts single phase. This 208 voltage, not being sufficient to develop full starting torque of the 230 volt single phase motor, may cause the motor to operate constantly on starting windings and this would result in overheating and possible burn-out.

The Boost and Buck series of transformers are essentially 4 winding insulated transformers in which the separate windings are interconnected so as to provide essentially the same voltage tapping characteristics as an auto transformer. In effect the secondary winding voltage is added to the input voltage thus boosting the output voltage 5% or 10% as desired.

Acme Electric Boost & Buck transformers are available in capacities to meet the needs of any installation from $\frac{1}{4}$ ton units to commercial types requiring up to 105 KVA electrical capacity. Write for Catalog BB-199.

ACME ELECTRIC CORPORATION
825 WATER STREET • CUBA, NEW YORK

Acme Electric
TRANSFORMERS

Circle No. 35 on Reader Service Card

38

Edwin A. Carell has been appointed to handle application engineering for Bush Mfg. Co., and **Deane R. Keuch** has joined the company in a similar capacity. Carell previously was with Walter Kidde Mfg. Co., while Keuch was a sales engineer for Pratt & Whitney Div., United Aircraft.

J. Robert Montgomery has been appointed manager of the



San Francisco sales office of Coleman Co., Inc. Montgomery succeeds Lawrence G. Ingram who has accepted a special assignment with the manufacturer's outing products division. He joined Coleman in 1947 and three years later was named regional manager for heating equipment sales in the Great Lakes area.

G. O. Kuhen, a veteran of 25 years at Servel, Inc., has been promoted to the newly created position of assistant product director for all-year air conditioning.

this Paragon 3400
series time switch

ENDS HAPHAZARD DEFROST CYCLING



... heavy-duty, industrial-type motor
is the KEY to dependable ON-OFF-ON
compressor shutdown defrosting

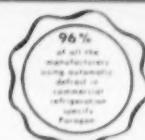
In time controls, ruggedness pays off! If a time control does not bring a refrigeration system out of a defrost cycle, it means *real* trouble. Where a customer formerly had ice cream to sell, he now has soup... steaks have turned to spoiled beef.

You can do something about this by making sure the 3400 series is a *standard installation* on every commercial job. You can expect a minimum life expectancy of 5 to 7½ years from the industrial-type, heavy-duty, 4-watt Telechron motor. No question about it! When you install a Paragon 3400, you assure years of continuous, dependable protection.

Isn't this the profitable way to add satisfied customers... cut call-backs? Get all the details NOW on the famous Paragon 3400 series.



- INSTANT ADJUSTMENT — add or remove quick-change dial trippers any time . . . 1 to 6 defrost cycles per 24-hour period.
- TWO COMPLETE SETS of trippers included with each time switch.
- "TORSION-CLUTCH" DIAL DRIVE — turns freely for manual check, yet has positive, no-slip drive.
- SKIP-TRIP may be manually operated without disturbing sequence of automatic operation.
- Available in 120-v and 240-v, a-c SPST, DPST and SPDT, 30-amps, 1-hp types.



PARAGON

Also write for complete facts on these famous Paragon timers.



Commercial
Defroster
Timers



Dehumidifier
Timers



7-Day Calendar
Dial Time Switch



Fan
Timers

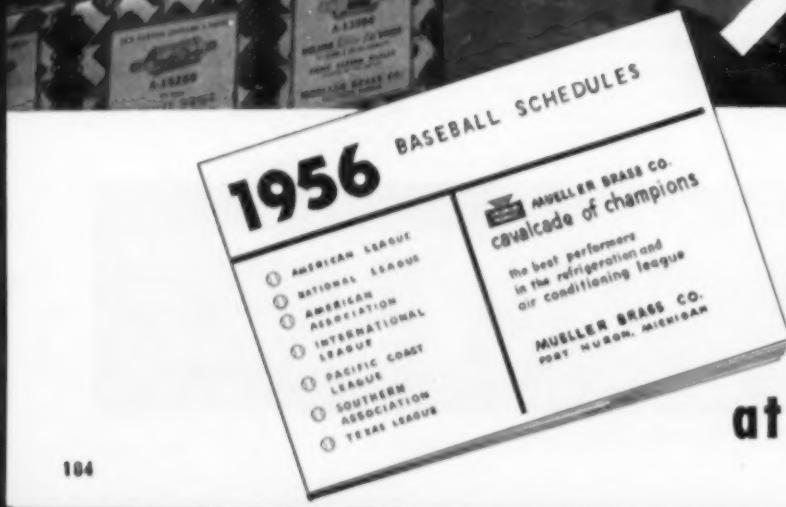
ELECTRIC COMPANY

Two Rivers, Wisconsin

WORLD'S FOREMOST MANUFACTURER
OF TOP-QUALITY TIME CONTROLS

"In Canada: Automatic Electric Sales (Canada) Ltd., Toronto"

Circle No. 36 on Reader Service Card



**get your free
sports schedule
for 1956
at your wholesaler's**

Circle No. 37 on Reader Service Card



see the
**cavalcade of
champions**

now on display at
your wholesaler's

**MUELLER
BRASS CO.**

PRODUCTS

**the best performers
in the refrigeration and
air-conditioning league**



FLARE FITTINGS



PACKED LINE VALVES



STREAMLINE SOLDER-
TYPE FITTINGS



LIQUID INDICATORS



DRIERS-STRAINERS



DIAPHRAGM
LINE VALVES



COPPER
TUBE

MUELLER BRASS CO.

P O R T H U R O N 10, M I C H I G A N

DEPENDABILITY

and

LESS SERVICE

That's Why More and More Wholesalers Are Successfully Standardizing On



KELVINATOR

Every day wholesalers are proving that the dependability of Kelvinator equipment assures them complete customer satisfaction.

More and more responsible, aggressive wholesalers have found that the sound policies and selling practices in Kelvinator's new comprehensive wholesaler program assure them more sales

and more profits, more customer satisfaction.

It will be well worth your while to study the advantages of this new Kelvinator wholesaling plan. Write today and get complete information on our many real advantages . . . our proved wholesaler program . . . our dependable products from a reliable source of supply.

Kelvinator

Division of American Motors Corp., Detroit 32, Mich.—In Canada: Kelvinator of Canada, Ltd., Toronto 15, Ontario

American Motors Manta



Maps for Americans

SPECIALISTS IN REFRIGERATION SINCE 1914

Circle No. 38 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION



Fast, easy-to-apply Armaflex pipe covering can be slit lengthwise, snapped in place, and sealed with Armstrong 520 Adhesive on lines already in operation. If applied at the same time as piping is being installed, Armaflex can be slipped on, readily follows bends in copper tubing without cutting or fitting.

New insulation for liquid cooling and heating lines is flexible for fast, easy installation

Extreme flexibility of Armstrong Armaflex* allows fast insulation of liquid cooling and heating lines. It can be compressed without damage, applied in close quarters, and bent to fit the contour of formed tubing. On the job, Armaflex can be slipped on while pipes or tubing is being installed or slit and snapped over lines that are already in place.

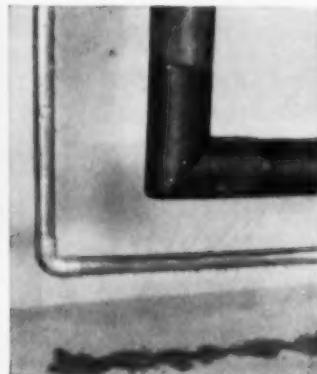
Made of a resilient, foamed plastic, Armaflex will not crumble, chip, or rub off. Waste is negligible. Fitting covers can be made up easily and rapidly from miter-cut pieces.

No separate vapor barrier is needed

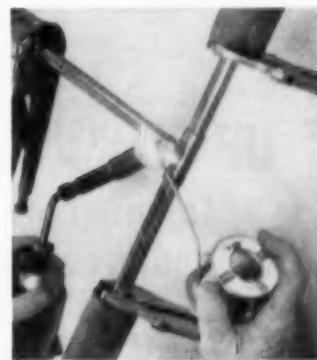
on Armaflex installations. The foamed cellular composition is a positive vapor seal. Because Armaflex stays dry in service, its high K factor of 0.28 at 75° F. remains high for the life of the installation.

Armstrong Armaflex is made in $\frac{1}{2}$ " and $\frac{3}{8}$ " thicknesses for pipe and tubing to $3\frac{1}{8}$ " I.D. Pieces are 6' long.

For free booklet containing complete data on this remarkable new insulation material, call your nearest Armstrong office or write today directly to Armstrong Cork Company, 2005 Rumford Avenue, Lancaster, Pennsylvania.



Stops condensation, when used in $\frac{1}{2}$ " thickness, under normal design conditions on indoor lines operating at temperatures above 32° F. On heating cycle, Armaflex will withstand 200° F.



A self-extinguishing material, new Armaflex will not support combustion and may be slipped in place over copper tubing and held back with clamps while sweat fittings are made.



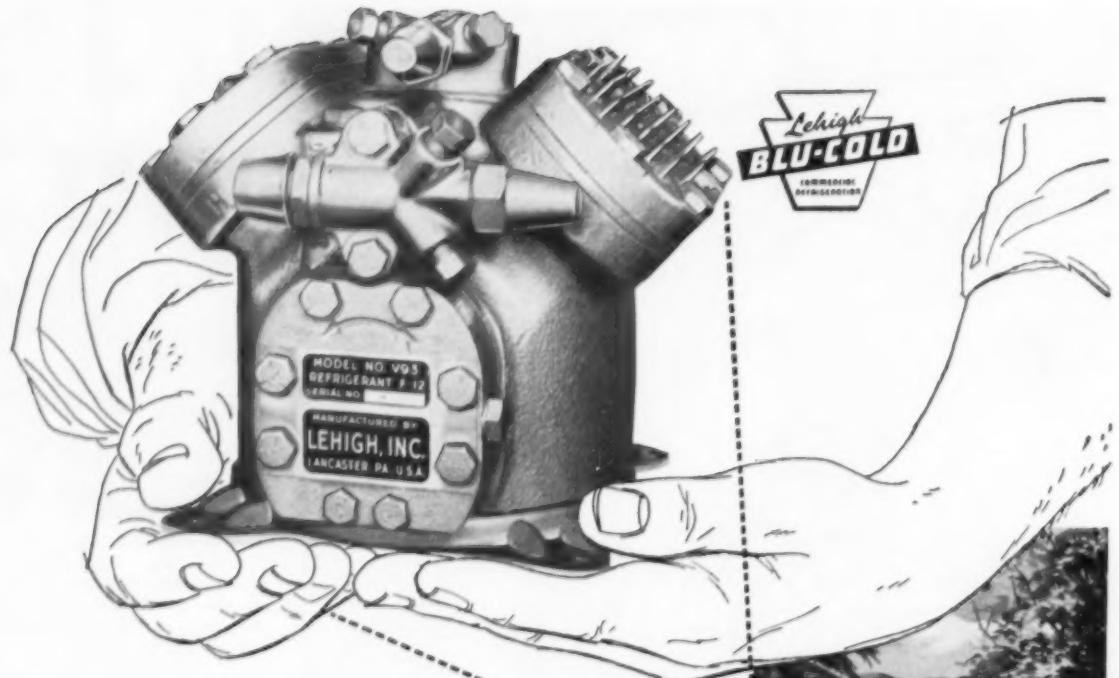
Joints are cemented with Armstrong 520 Adhesive. This easy-to-handle adhesive furnishes a tight, vaporproof bond. No other sundry is required on an Armaflex pipe covering job.

Armstrong
INDUSTRIAL INSULATIONS

*TRADE-MARK

& AIR CONDITIONING • MAY, 1956

Circle No. 39 on Reader Service Card



UP TO 6000 RPM
to meet every driving
and weather condition



Model **V-93** Automotive Air Conditioning Compressor

When Old Sol again starts to blister the highways and streets, the coolest cars on the road will be sporting America's 'hottest' air conditioning compressor — Lehigh's Model V-93. This pint size giant, designed and built for this one purpose only, can operate with gyroscopic smoothness at 6000 RPM and can produce up to three (3) tons of refrigeration. The fabulous V-93 was conceived and developed by Lehigh engineers working in close cooperation, for more than two years, with America's leading automobile manufacturers and air conditioning specialists. Among its major construction and

engineering features are: Gear pump, forced feed lubrication to all moving parts. Forged steel crankshaft counter-balanced to $\frac{1}{4}$ inch ounce. Die-cast aluminum connecting rods and pistons. Aluminum alloy heads. Assembly to $\pm .0002$ — a tolerance which is closer than that of a fine automobile engine. SIZE — only $7\frac{1}{2}$ " high — to fit under the hood of modern cars — $9\frac{1}{8}$ " long and $8\frac{1}{2}$ " wide. WEIGHT — only $31\frac{1}{2}$ lbs. including service valves and oil charge. The LEHIGH TEAM is rightly proud of this 'baby' and will be glad to send you additional engineering data.



Lehigh
MANUFACTURING CO.

"America's Most Modern Condensing Units"
PACKAGED, STANDARD & HEAVY DUTY

Road Proven
REFRIGERATED TRUCK SYSTEMS
Compressors for
AUTOMOTIVE AIR CONDITIONING

DIVISION OF LEHIGH, INC.

Export Department, 13 E. 40th Street, New York City

Plant: LANCASTER, PENNA.

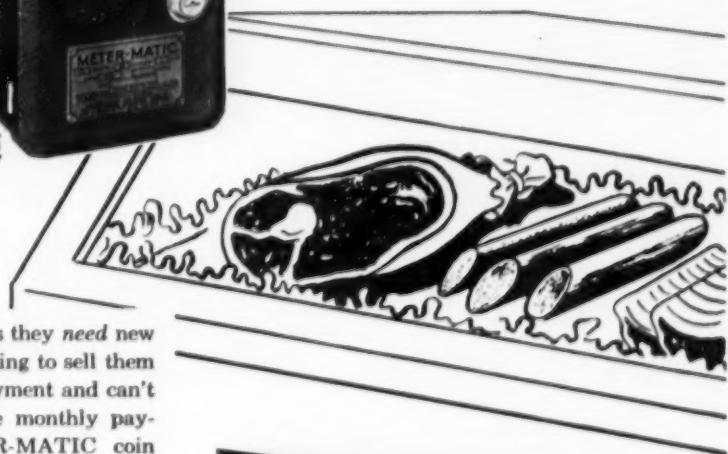
Circle No. 40 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

The most powerful sales-clincher ever devised



custom made for the
man who says...
*"I can't afford
new refrigeration"*



It's easy to convince your prospects they *need* new refrigeration . . . but it's another thing to sell them when they don't have the down payment and can't see how they can accumulate the monthly payments. That's where a METER-MATIC coin meter will step in and *close the sale*.

Your customer puts just a few quarters a day in the coin meter . . . right from the till the way he's accustomed to pay his other suppliers . . . and he's got his refrigeration, and you've got your customers. You can sell safely with no money down, except the installation charge.

METER-MATIC
COIN METER
REFRIGERATION SALES PLAN

GET THE COMPLETE STORY

- FULL DETAILS . . . Specifications, prices, etc.
- METER PLAN BROCHURE . . . to help you sell
- FREE SELF-MAILERS . . . for mailing to prospects

MAIL THIS COUPON NOW!

INTERNATIONAL REGISTER COMPANY

2622 W. Washington Blvd., Chicago 12, Illinois

Please send me Meter-Matic Sales Kit No. 56 Mm
supply of 25 self-mailers for mailing to my prospects.

Be sure to include a free

Company _____

My Name _____

Address _____

City _____

Zone _____ State _____

Circle No. 41 on Reader Service Card

Jenni Genetron says:

Buy from your
genetron
wholesaler
displaying
this clock!



IT'S ALWAYS THE RIGHT TIME
FOR **genetron** Super-Dry Refrigerants

genetron 11 ORANGE LABEL
TRICHLOROMONOFLUOROMETHANE

genetron 12 WHITE LABEL
DICHLORODIFLUOROMETHANE

genetron 141 GREEN LABEL
MONOCHLORODIFLUOROMETHANE

genetron 226 PURPLE LABEL
TRICHLOROTRIFLUOROETHANE

Wherever you are—from coast to coast—there's a "genetron" wholesaler as close to you as your telephone. When you order refrigerants, always ask for "genetron" super-dry refrigerants!

Basic Chemicals for American Industry

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.
Circle No. 42 on Reader Service Card



MAY, 1956 • COMMERCIAL REFRIGERATION

SIGNED

CHASE COPPER REFRIGERATION TUBE

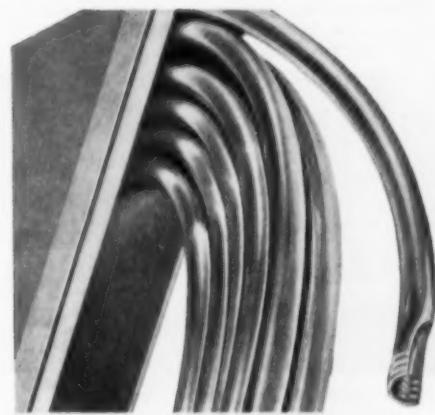
is signed with this famous trademark that assures you of top quality. It's extra-soft copper refrigeration tube. Bright, clean, completely moisture-free!



SEALED

CHASE COPPER REFRIGERATION TUBE

is sealed at both ends. Double crimping keeps out all dirt and moisture. Crimp is the same size as the tube itself. Can be passed through any opening large enough for the tube.



DEPENDABLE

CHASE COPPER REFRIGERATION TUBE

comes to you in fully identified, compact cartons. It's 50 feet of the finest tube made. Free from flaws. Bends easily. Can be flared precisely.

Use Chase *extra-soft* copper refrigeration tube and Chase wrought copper fittings to make rugged, gas tight systems that *stay* trouble-free! Your Chase wholesaler has it in the sizes you need.

Order some for your next job!



Chase



BRASS & COPPER CO.
WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

& AIR CONDITIONING • MAY, 1956

Circle No. 43 on Reader Service Card

The Nation's Headquarters for Brass & Copper

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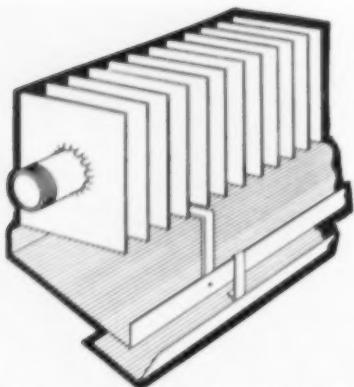
Chicago
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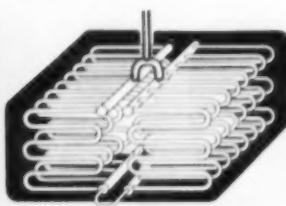


Butt-welded coils are stronger than the original pipe.

Frick Patented square-finned steel pipe is preferred for cold storages, freezers, etc. Seven-inch fins, spaced 1" or 1½", are bonded under tons of pressure, then galvanized.



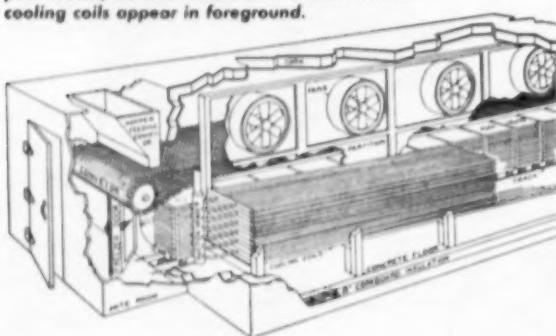
Spiral-finned coils are built in any style wanted. Pipe is $\frac{3}{4}$ " steel; assembly is hot-dip galvanized.



Above: Type VW coils have many uses, offer many advantages.

Left: Patented direct-expansion Frick coils more than double the production of synthetic rubber reactors.

Below: Quick-freezing tunnel equipped with both conveyor and push trucks, able to handle ANY foods. Inclined cooling coils appear in foreground.



COOLING COILS

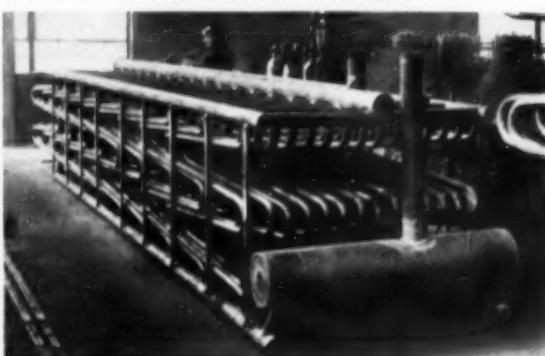
Are furnished in any style, any size, for any refrigerant: finned or bare pipe, welded or threaded, black or galvanized. Many exclusive types available.

Frick coils are designed, built, and installed . . . COMPLETELY ENGINEERED . . . to meet your exact needs most effectively.

Get the full facts and figures now: write for bulletins and estimates: address

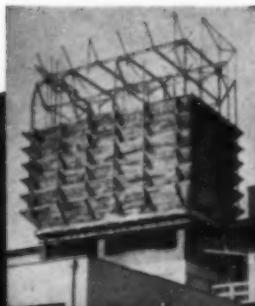


Below: Vertiflow coils are unexcelled for chilling water or the brine in ice tanks.



Circle No. 44 on Reader Service Card

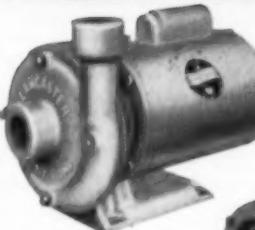
MAY, 1956 • COMMERCIAL REFRIGERATION



For All
Air Conditioning
and Refrigeration
Installations

LANCASTER UNIT PUMPS TYPE M

Low Cost, High Quality
Close-Coupled Centrifugal Pumps



- Quiet Operation
- Balanced Bronze Impellers
- Bronze Shaft Coupling
- Easy to Install
- Four Position Indexing
- Ceramic Seat Mechanical Seals

LANCASTER Unit Pumps Type M are specifically designed for Air Conditioning and Refrigeration systems wherever a reliable and dependable close-coupled Centrifugal Pump is required. They are ideal for cooling tower systems as well as brine and other liquid circulation.

All LANCASTER Unit Pumps are designed for continuous duty and are equipped with the latest type ceramic seat seals. Heavy duty models are available from $\frac{1}{2}$ to $7\frac{1}{2}$ HP. They are also well suited for general purpose industrial applications.

You can use Submersibles for modern and convenient deep well cooling in your air conditioning systems. Be sure to find out about the complete line of LANCASTER Underwater Pumps from $\frac{1}{2}$ HP to 275 HP equipped with reliable 100% water cooled, water lubricated, and water filled motors.

Write for latest catalog.

LANCASTER PUMP & MANUFACTURING CO., INC.

Box 1-778, Lancaster, Pa.

Circle No. 45 on Reader Service Card
& AIR CONDITIONING • MAY, 1956



Plastic Coating Stops Costly Condensation Drip and Rust

THE COSTLY PROBLEM caused by dripping from this sweating pipe was permanently solved with one easy and inexpensive application of NoDrip Plastic Coating. Sweating pipes, ceilings, air ducts and other metal equipment are also completely protected against rust and corrosion by low cost NoDrip.

NoDrip Plastic Coating acts immediately to insulate and protect. One application adds many years of service life to metal equipment. NoDrip is also resistant to acid, alkali and brine...protects concrete, brick, plaster, tile wood or composition surfaces.

Easy application requires no special equipment or skill. Anyone can apply NoDrip with brush, trowel or spray. Stop your condensation problem now! Get full details without delay.



**JW Mortell
COMPANY**

32-PAGE NoDrip DATA HANDBOOK
Complete with photographs, charts and technical information to solve your condensation problem. Write today.

Available at leading refrigeration supply houses

J. W. MORTELL CO., 553 E. Birch St., Kankakee, Ill.

Please send my FREE copy of the NoDrip Data Handbook.

Name _____

Company _____ Title _____

City _____ Zone _____ State _____

Circle No. 46 on Reader Service Card



SERVICE

makes EASY-FLO
and SIL-FOS your
top brazing alloy buy

That the EASY-FLO and SIL-FOS low-temperature silver brazing alloys are tops for speed and economy, stands proved beyond question in their years of wide-spread use throughout Industry.

But what makes them your *top brazing alloy buy* is — the SERVICE that goes with them . . . a service freely given to all EASY-FLO and SIL-FOS users with no obligation . . . a service that places at every user's call the maximum technical knowledge about silver brazing and practical experience in its application available today — backed by outstanding engineering and research departments . . . a service ready to assist on any and all phases of silver brazing from joint design right through into production.

THIS TYPICAL EXAMPLE

well illustrates how valuable this service can be. A manufacturer was brazing steel spuds into steel shells with EASY-FLO 45. Pull tests showed some joints not up to strength. A call brought a field service engineer. He found that, in flattening and piercing the shell for the spud, oil and dirt were being pressed into the metal. He recommended degreasing the parts and keeping punch press tools clean. He tried this out on a number of shells. Upon test the joints all held — the shells tore away. There's been no trouble since.

SEND FOR THE DISTRIBUTOR LIST

EASY-FLO and SIL-FOS Distributors cover the country. They're specially selected and qualified to supply and serve you. The list will tell you the address of the one nearest you. Write for it — today.

FOR THE FULL EASY-FLO AND SIL-FOS STORY
in words and pictures, write for Bulletin 20.



OFFICES and PLANTS
BRIDGEPORT, CONN.
PROVIDENCE, R. I.
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HANDY & HARMAN

General Offices: 82 Fulton St., New York 38, N. Y.
DISTRIBUTORS IN PRINCIPAL CITIES

Circle No. 47 on Reader Service Card



by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which appears periodically in the issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

—The Editors

REFRIGERATING MACHINE RULED A FIXTURE

WHEN the owner of a public garage in Binghamton, N.Y., decided to supplement the garage business with beer wholesaling, he installed a refrigerating system in his garage and separated the storage room for the beer by a cinder block partition.

On the walls of the store room were coils of 1 1/4" steel pipe in banks in H, connected to the refrigerating unit in the garage. The machine rested on a concrete floor and was removable without injury to the building. By dismantling the cinder block partition the building could be restored to its original condition.

When the owner nine years before had bought this garage he had mortgaged the property to the Marine Midland Trust Co. In a foreclosure action by the bank after this refrigerating system had been installed, the bank claimed a mortgage lien on this equipment, notwithstanding it had been added to the property after the mortgage had been made.

In its decision the New York State Supreme Court, holding the equipment subject to the lien of this mortgage, said, "The fundamental test is whether, everything considered, it may fairly be found that the purpose of the installation was to make the equipment a permanent part of the freehold."

"It is argued that to permit the mortgagee to have the machine would



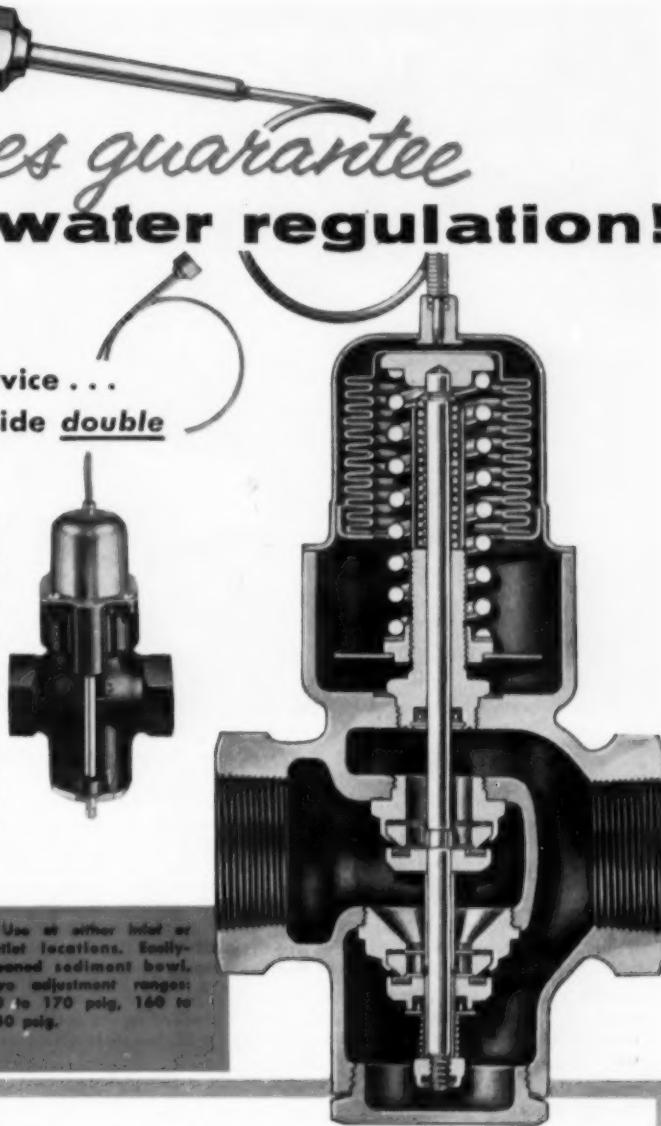
Exclusives guarantee chatter-free water regulation!

Model 65 for 1" and 1 1/4" service . . .

**lifetime ceramic seats provide double
protection against wear**

Only A-P offers you the lifetime protection of ceramic seats! And in water valves, this means *maximum resistance to wear and erosion resulting from high water velocities*. You eliminate trouble-some pistons . . . you get chatter-free performance, because valve is *not* affected by inlet pressure.

Add the "any-position" installation . . . the extra compactness . . . easy-cleaning sediment bowl, plus a host of other advanced features — more reasons why Model 65 is right for your next O.E.M. or replacement job!



* Double port eliminates effect of water pressure on valve — makes it completely chatter-free!

* Capacity: 65 gpm at 50 psig; 1" valve; 80 gpm at 50 psig (1 1/4" valve). For P12 and P22 service.

* Use at either inlet or outlet locations. Easily-cleaned sediment bowl. Two adjustment ranges: 70 to 170 psig, 160 to 240 psig.



SELF-CLEANING, self-aligning valve shoe floats on stem. Bevel design assures clean wipe of seat, each valve cycle. Ends unnecessary call-backs.

Model 65 for 3/8", 1/2" and 3/4" service sliding seat is self-cleaning

And, you get positive shut-off without water hammer! Operation is absolutely not affected by inlet pressure variations. Stays clean despite dirt, lime or sand. You can't beat Model 65 for dependability!

* Operating range: P12 — 65 to 200 psig; P22 — 160 to 200 psig. Completely accessible operating stem.

* Capacity: 3/8" to 40.0 gpm. Wide application range — gas, steam, liquids, acids, alkalis, insulation.

* Extra service life. Two-piece bodies. All parts in contact with water are non-corrosive. Brass forged body.

Discover the many advantages of Model 65 water regulating valves yourself — order from your wholesaler, or write:



DEPENDABLE Controls

for Air • Liquids • Gases • Refrigerants

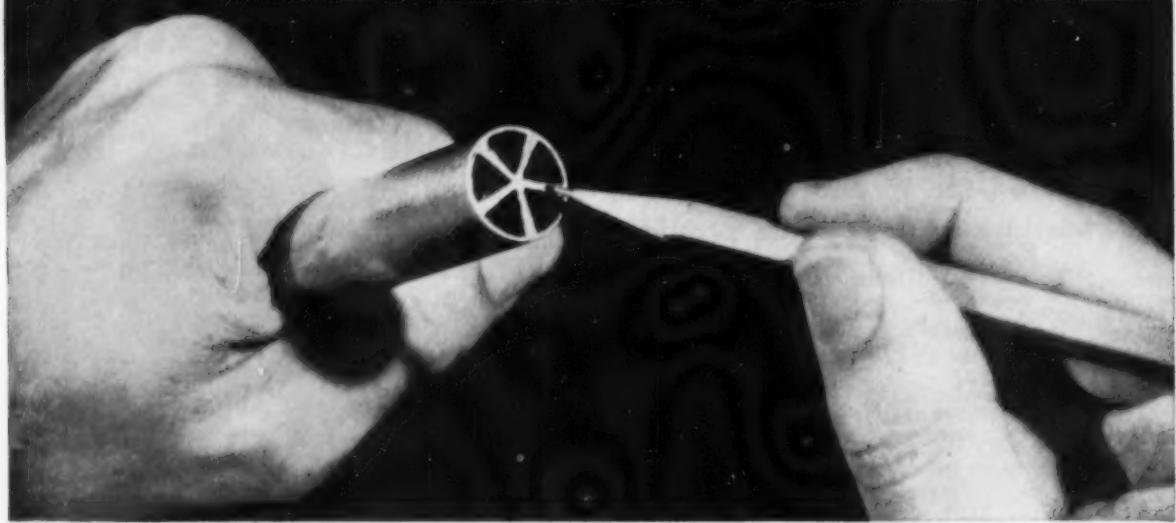
& AIR CONDITIONING • MAY, 1956

**A-P CONTROLS DIVISION
CONTROLS CORPORATION OF AMERICA**

2486 N. 32nd Street, MILWAUKEE 45, Wisconsin
COOKSVILLE, Ontario NIJMEGEN, Holland
For Export: 13 E. 40th Street, New York, N. Y., U. S. A.

Circle No. 48 on Reader Service Card

This STAR FEATURE of the new *Acme DRY-EX®* gives you a SMALLER, LIGHTER, MORE EFFICIENT LIQUID CHILLER



25% more cooling capacity per cubic foot

After years of research and testing, Acme announces a new and important advancement—the first real innovation in direct expansion liquid chiller design since Acme's introduction of the original Dry-Ex in 1937. A new copper tubing with a star-shaped aluminum insert[®] more than doubles the effective heat transfer surfaces between water and refrigerant. This makes the new Dry-Ex the first liquid chiller designed specifically for today's refrigerants. Combined with all the proved advantages of Acme's thru-tube construction, the star-insert tubing makes the new Dry-Ex smaller and lighter, with 25% more cooling capacity per cubic foot than ever before possible.

Acme's new aluminum insert provides clear passages for the flow of refrigerant so that the pressure drop is minimized. Imbedded in the walls of the tubes by a cold-drawing process, the aluminum establishes molecular contact with the copper for perfect heat conductivity.

Whether it's an air conditioning or a process chilling application, the new Dry-Ex will allow you to build a more compact system—one that is economical to install and operate. Dependability is assured. The new Dry-Ex incorporates all the proven construction features that have made the Dry-Ex the leading product in its field since originated by Acme in 1937.

*Patent applied for

ACME INDUSTRIES, INC. JACKSON, MICHIGAN



EVAPORATIVE CONDENSERS



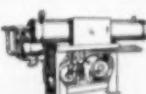
COOLING TOWERS



CONVECTORS



PACKAGED
HEAT PUMPS



PACKAGED CHILLERS



LIQUID CHILLERS



CONDENSERS



Manufacturers of Quality Air Conditioning and Refrigeration Equipment since 1919

New selection procedure simplifies your engineering task

Send me the complete new catalog on Dry-Ex Liquid Chillers.

Name _____ Title _____

Address _____

City _____ Zone _____ State _____

Circle No. 49 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION



PROVEN THRU-TUBE EFFICIENCY MAINTAINED

Acme's star-shaped aluminum insert tubes of the new Dry-Ex extend straight through to multi-pass heads at each end. No bends, no soldered joints—no leaks! High refrigerant velocity is maintained and controlled to achieve greater chiller efficiency, lower pressure drop and more positive oil return than is possible with any other construction.



CHILLER SIZE AND WEIGHT REDUCED SIGNIFICANTLY

Diagram shows typical reduction in chiller diameter made possible by the greater heat-transfer capacity of Acme's new Dry-Ex. Because of their smaller size, these chillers fit into closer spaces, are easier for the contractor to handle and install. Reduced weight saves freight costs and smaller cubic content of refrigerant and water means a smaller refrigerant charge, less load on floors and on mounting structures.

be highly inequitable since it was attached long after the mortgage was given. But whether equitable or not, no such distinction may properly be made. Although it is true that the added security was not bargained for, it is yet not a bargain or agreement which makes a chattel a fixture but rather its permanent attachment to the land so as to become part of it, and it is therefore of no importance whether the attachment occurs before or after the mortgage is given." *Marine Midland Trust Co. v. Ahern*, 16 N.Y.S.2d 656, New York.

INJURIES FROM DEFECTS IN MANUFACTURE

REFRIGERATION equipment purchased from a California dealer failed to operate as promised. The refrigerant held in a supply tank passed through a single tube to a manifold and thence into two tubes with separate evaporators, the flow of the refrigerant governed by needle valve and a float automatically shutting off the intake.

When the dealer's service man attempted to remedy the defects he removed a needle valve and sulphur dioxide refrigerant spurted into his face. In his suit against the manufacturer for damages the court denied him a recovery.

"The general rule," said the court, "is that the manufacturer of an article is not liable to third parties who have no contractual relations with him, for negligence in the construction of the article. There are, however, exceptions to this general rule — one being that the act of negligence of a manufacturer imminently dangerous to life or health, and committed in the preparation of an article intended to preserve, destroy or affect human health, is actionable by third parties who suffer from the negligence."

"However a refrigerant is not essentially a dangerous thing. It is not anticipated that it will do injury. We must assume that the refrigerator was effectively constructed, but even so it gave no warning that it would be dangerous in its normal use."

Borg-Warner Corp. v. Heine, 128 Fed. 2d 657.

PURCHASE CONTRACT DESCRIPTION INADEQUATE

In a printed contract form used in the sale of refrigerating equipment there was written as the description of the property,

"One F.O. S M Z-1163 \$644.00
Allowance for used Refr. 194.00
\$450.00"

Two months after the contract had been signed, the purchaser was bankrupt and the trustee applied to the court for permission to sell the refrigerator on the ground that the seller had forfeited its title, as this



Here's the ideal furnace for use with packaged air conditioners



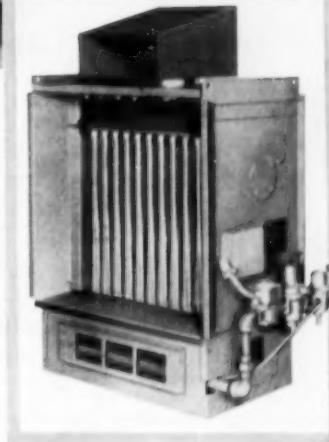
It's *Modine* STAINLESS STEEL Gas-Fired Duct Furnace

RUST and corrosion-resistant stainless steel burners and heat exchangers make the Modine Gas-fired Duct Furnace especially suitable for use with cooling coils or packaged air conditioning units. Equally adaptable to straight space heating and drying applications. Lightweight units are easier, less expensive to ship and install.

Only Modine offers all these advantages

Fast, uniform heat is assured by seam-welded, gas-tight tubes, direct-fired . . . large, self-cleaning ports.

Convenient controls are mounted on side of unit for easy access, regardless of furnace location.



Removable burner unit for easy inspection, service.

Five sizes — from 88,000 - 213,000 Btu/hr input . . . all AGA approved.

Wide application—gas-fired duct furnaces are ideal for residential, commercial, institutional buildings . . . industrial and agricultural drying, processing and ventilating.

For complete information, see the Modine representative listed in your classified phone book, or write Modine Mfg. Co., 1583 DeKoven Ave., Racine, Wis., for Bulletin 855.



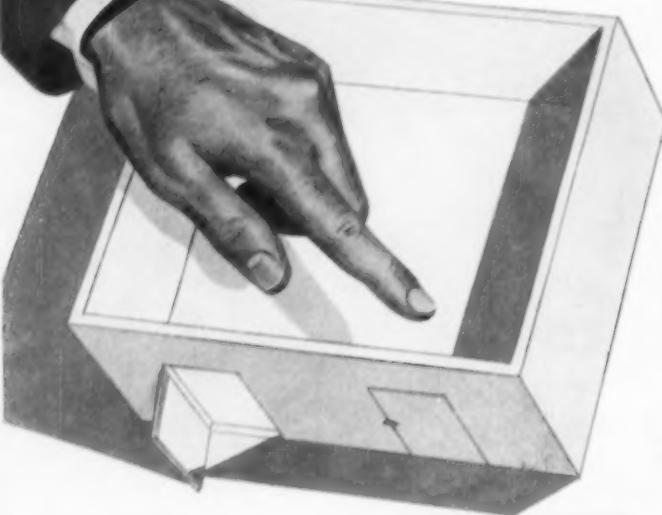
Modine

GAS-FIRED STAINLESS STEEL DUCT FURNACES

Circle No. 50 on Reader Service Card

Building a Cold Room?

Be sure you get all Three



1. THE RIGHT MATERIAL—UNITED'S B.B. (block-baked) CORKBOARD

No fillers—no binders—low "K" factor—easy to install—strong—lightweight—flexible. Bonds readily—works as easily as lumber.

2. THE CORRECT DESIGN—UNITED'S DESIGN SERVICE

Our engineers are trained insulation experts—available to consult, design and specify complete installations of insulation for practically every job condition and to your specifications.

3. THE PROPER INSTALLATION—UNITED'S INSTALLATION SERVICE

Our skilled erection crews, located at each of our branch offices can handle your complete installation. Avoid delays and improper applications of insulation by using United's experienced design and installation service.

United Cork Companies' have 50 years of experience and leadership in serving the requirements of the refrigeration industry with a quality product. If you have a low temperature insulation problem, use the coupon below for additional product information and installation data. Your United representative will be glad to advise you.



UNITED CORK COMPANIES

7 Central Ave., Kearny, New Jersey



Manufacturers and erectors
of cork insulation
for almost a half century

UNITED CORK COMPANIES, 7 Central Ave., Kearny, N.J.

Please send United Cork Catalog. I am interested in

NAME _____

FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Engineering and installation offices, or approved distributors, in key cities—coast to coast.

Circle No. 51 on Reader Service Card

description in the contract did not comply with the statute that the contract must contain a description "sufficient to enable one to identify the property aided by inquiries reasonably suggested by the contract."

In its decision that the seller still had a good title to this refrigerator the court asserted, "It is apparent that this controversy would not have arisen had the salesman who procured the order inserted the word refrigerator or the words refrigerating unit between 'One F.O. SM' and 'Z-1163.' Since a food mart would usually require a refrigerator and a refrigerator company ordinarily deals in refrigerators, it would be reasonable to suppose that the purchaser was acquiring a refrigerator.

"It is obvious that the only reasonable inference that could be drawn from the instrument taken as a whole, is that this purchaser had purchased a refrigerator of this manufacturer bearing the numbers specified in the contract."

Miller v. McRay Refrigerator Co.,
130 Fed. 2d 873

SALESMAN'S CONTRACT UPHELD BY COURT

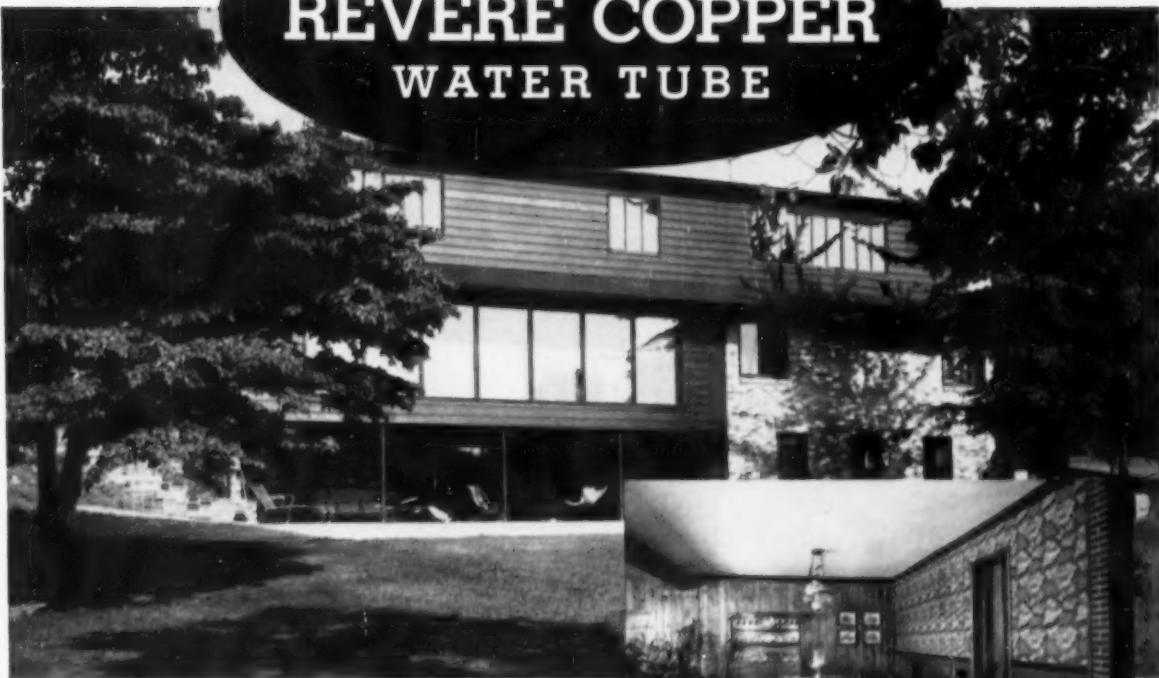
UNDER an exclusive sales contract between a salesman and a manufacturer, for New York City, Long Island and part of New Jersey, the salesman was to receive a commission of 5% on all sales. Shortly after this agreement had been made, the manufacturer was absorbed by another company and refrigeration equipment was added to the line. In an effort to stimulate these sales a contract was made by this succeeding manufacturer with a distributor, with the provision that the salesman should continue to receive his former commissions.

Later the manufacturer abandoned this contract with the distributor, refused to fill its orders, and made agreements elsewhere for the distribution of its products. At that time the salesman sued for his commissions and, in reversing a judgment denying him a recovery, the New York State appellate court said,

"Damages could not be limited to those arising out of the refusal of this company to fill orders actually given but this salesman would be entitled to recover such damages as he could show he had sustained by total breach of the contract, the measure thereof depending upon the circumstances of the case. Upon showing the breach by this manufacturer of its contract with this distributor the latter company was entitled to damages.

"The salesman in turn was entitled to damages measured by the commissions which he might have earned under reasonable probabilities during the remainder of the term of the contract." *Hedeman v. Fairbanks, Morse & Co.*, 36 N.E.2d 129, N.Y.

what they're doing with
REVERE COPPER
WATER TUBE



**1,740 feet used for hot water heating
 and air conditioning lines in residence
 of Charles L. Humphries, Paducah, Kentucky**

Architectural Engineer: G. ANTHONY JOHNSTON, Paducah
 Builder: LESLIE FEAST, Paducah

An interesting feature of this residence is the combined winter heating and summer air-conditioning system which has a boiler for winter use and a water chiller for summer use, with a transfer valve that diverts the water from one to the other as needed. Water is circulated through units that are in the rooms while fans blow air over the tubes in the units.

Said the Architectural Engineer, "I specified Revere Copper Water Tube for both of these systems because I knew the enduring and non-rusting qualities of copper would result in a satisfactory installation for my client." Said the Builder, "Using Revere Copper Water Tube upheld my reputation as a builder of quality homes and at the same time cost no more than rustable pipe." Said the Contractor, "I'm glad Revere Copper Water Tube was used for it's easy to work and handle and makes for a nice clean job."

Be smart! Play it safe with an all-copper installation. Use Revere Copper Water Tube for hot and cold water lines, air conditioning lines, radiant panel heating, underground service lines, drainage, waste and vent lines.

*For more information on Revere building products
 send for 28-Page Booklet—"Building to Endure
 with Revere". It's free!*

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

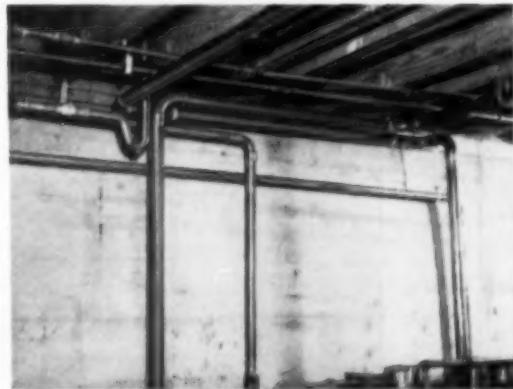
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago,
 Clinton and Joliet, Ill.; Detroit, Mich.; Los
 Angeles and Riverside, Calif.; New Bedford,
 Mass.; Newport, Ark.; Rome, N. Y. Sales Offices
 in Principal Cities, Distributors Everywhere.



Circle No. 52 on Reader Service Card

AT LOWER RIGHT in above photograph is one of the units which are used throughout the house. Revere Copper Water Tube carries hot water to the units in winter and cool water in the summer. Fans in the cabinets then circulate the hot or cool air, as the case may be, throughout the rooms.



No wrench-room worries here. Easy-to-solder Revere Copper Water Tube can be fitted into the tightest corner. Vertical lines shown come from the water chiller. G&H PLUMBING & HEATING COMPANY, Paducah, was the Contractor who installed the 1,740' of non-rusting Revere Copper Water Tube in sizes from $\frac{3}{4}$ " to 2". Tube was furnished by the HOE SUPPLY COMPANY, Paducah, Revere Distributor.

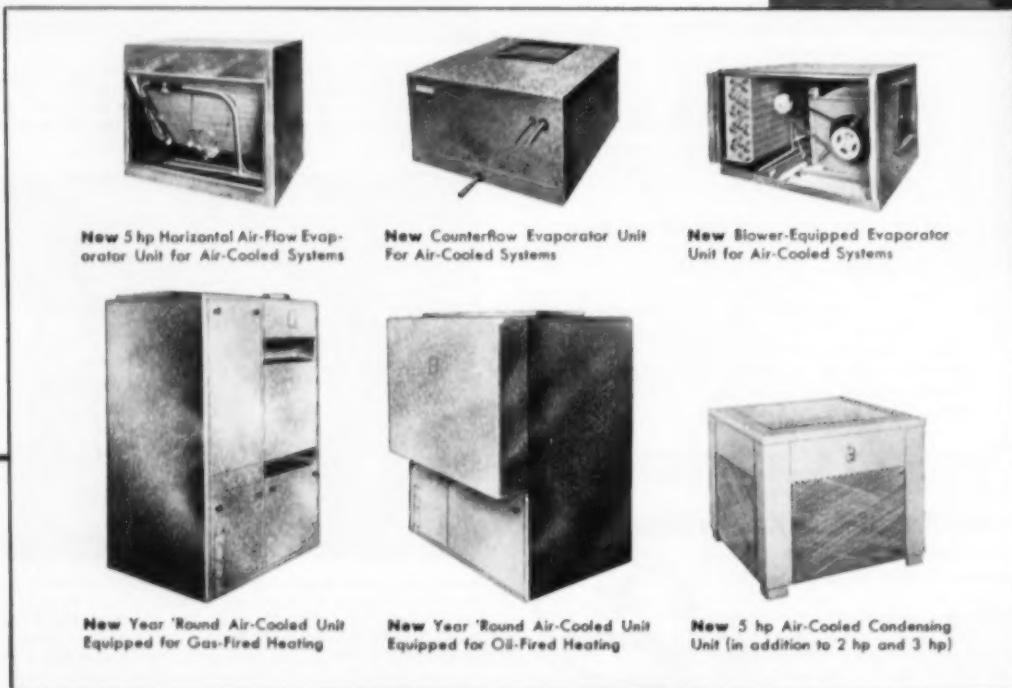
Famous name and like these make

AMERICAN-STANDARD
AIR CONDITIONING DIVISION

*Presents 6 New Additions to Air-Cooled Line . . .
Boosts Dealer Sales and Profit Potentials
to an All-Time High*

Waterless air conditioning is going over big. Cash in! Sell American-Standard . . . the line that's complete . . . the line that has the new products, new features that simplify installation . . . the line that sells faster, puts more dollars in your pocket.

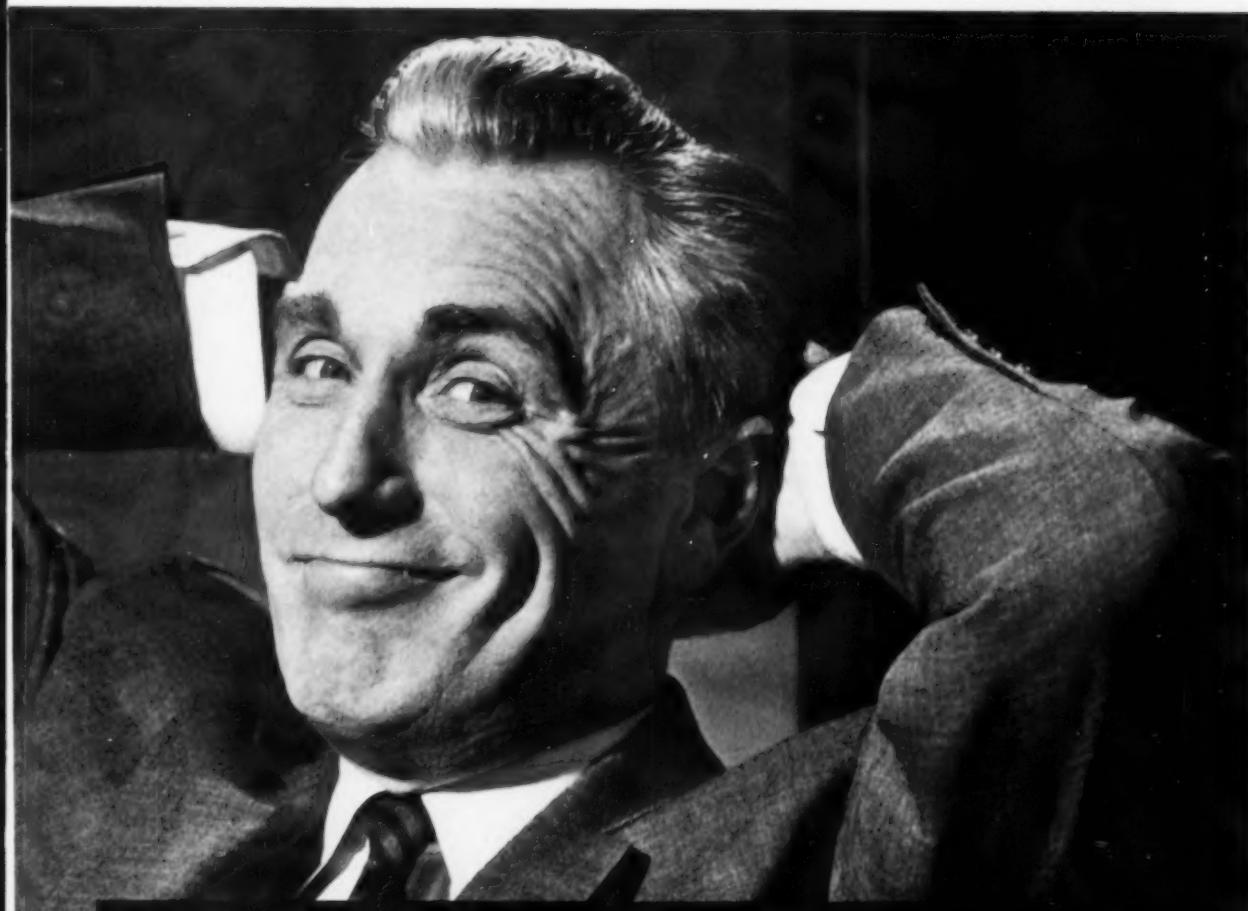
Backed by one of the world's best known brand names—American-Standard—here's *everything* you need—air-cooled or water-cooled—to meet the demands of the rapidly expanding residential and commercial cooling market. Here's top quality at competitive prices with a full margin of profit for you.



Circle No. 53 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

NEW PRODUCTS selling easier!



Get rolling NOW with American-Standard's Big 1956 Promotion Program

Promotion-wise as well as product-wise, the Air Conditioning Division of American-Standard backs you with *complete* sales support. Hard-hitting color and black and white full page ads in leading national home magazines . . . liberal Cooperative Advertising Plan covering newspaper space, radio and TV

time, and local home shows . . . plus a brand new aggregation of advertising literature and dealer identification material. **Act fast — contact your nearest American-Standard Air Conditioning distributor...listed under "Air Conditioning" or "Furnaces" in your classified telephone directory.**

EVERYTHING for
air conditioned comfort

Warm Air Heating
Summer Cooling
Year 'round Units



AMERICAN-STANDARD
AIR CONDITIONING DIVISION

ELYRIA, OHIO

Circle No. 53 on Reader Service Card

STOP WATER TROUBLES IN RECIRCULATING COOLING WATER SYSTEMS WITH

CALGON'S BIG 3

1

SCALE REMOVER

CALGON® SCALE REMOVER provides the easy and safest way to remove scale from cooling tower systems and evaporative condensers. A built-in color indicator guides proper dosage, and tells when you have used enough to get the system clean. Quickly brings head pressures down with the least possible damage to equipment.



2

MICROMET PLATES

Once you have the system clean, use MICROMET PLATES to keep it clean. MICROMET PLATES are the best answer to the maintenance problem. They provide continuous treatment, inhibiting the formation of scale and corrosion. Needs no expensive plumbing installation as low cost, plastic coated, glass mesh bag holds Plates in the water stream. One charge lasts all season in most systems.



3

ALGAECIDE

Highly effective against algae and slime in cooling tower systems, CALGON ALGAECIDE comes in easy-to-use compressed pellet form. Pellets are coated to reduce dust for personnel protection and are non-corrosive to equipment. Safe and efficient, CALGON ALGAECIDE helps keep recirculating water systems at top efficiency.



*T.M. Reg. U.S. Pat. Off.

calgon, inc.

A SUBSIDIARY OF HAGAN CORPORATION

HAGAN BUILDING, PITTSBURGH 30, PA.

Circle No. 54 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

in tremendous demand
for home and business



**Kooler-aire
system
for "waterless"
air conditioning**



The industry's most complete line of
"air-cooled"... in matched 2, 3, 5 & 7½ h.p. models!



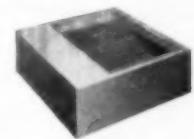
CONDENSING UNIT
compressor,
condenser coil,
blower, receiver



**HORIZONTAL AIRFLOW
COOLING COIL**
coil,
expansion valve,
drain pan



**VERTICAL AIRFLOW
HOUSED COIL**
v-type coil,
expansion valve,
drain pan



**COUNTER FLOW
HOUSED COIL**
coil, expansion valve,
drain pan



**COIL-BLOWER
HOUSED SETS**
filter, coil
expansion valve,
drain pan, blower.



**UNITED STATES
AIR CONDITIONING
CORPORATION**
Minneapolis 14, Minnesota
*Export: 13 E. 40th Street,
New York 16, N.Y., U.S.A.*

Meet today's growing demand for waterless air conditioning with the most efficient equipment built . . . usAIRco Kooler-aire. Kooler-aire operates on electricity only, ideal where water is scarce or expensive, and where water disposal is a problem. The condensing unit is usually located out-of-doors, but may be installed indoors when vented. Cabinet is weatherproof. Copper tubing carries the refrigerant from the condensing unit to the Kooler-aire coil, which may be installed anywhere on the outlet side of the air supply system. Where an independent blower system is needed, usAIRco provides a housed coil-blower unit with optional filter section.



Year 'Round



Add-on
"Packaged"



Central Station
Air Conditioner

Mr. T. J. Craig, Manager, Packaged Air Conditioning
UNITED STATES AIR CONDITIONING CORPORATION
3300 COMO AVE. S. E., MINNEAPOLIS 14, MINN.

Please send me complete details on "air-cooled".

COMPANY NAME

ADDRESS

CITY

STATE

MY NAME

POSITION

NEW UNIFLOW WATER COOLERS . . .

NOW IN BEAUTIFUL PEARLTONE
GREY WITH YOUR CHOICE OF 6 TOPS
COLOR KEYED TO
YOUR PROSPECT!

EYE APPEALING
COLORS.. AT NO
EXTRA COST!

PEER BLUE

WHITE

SPRUCE GREEN

BURGUNDY

BLACK

GREY

Featuring FOOT PEDAL
CONTROL

FREE Full COLOR

BROCHURE . . . of the
new COMPLETE line of
Uniflow Water Coolers.



UNIFLOW . . . a pioneer builder of water coolers
for over 24 years . . .

UNIFLOW MANUFACTURING COMPANY
EAST LAKE ROAD, ERIE, PENNSYLVANIA

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60

There's A New Little Giant Product

A Pump with
a Nylon Head



Specially designed
for Beverage Dispensing and other
liquid handling . . .
Solves many of the
problems involving mild acids.

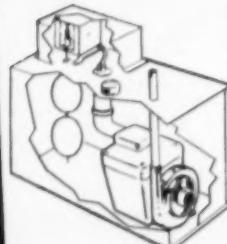
Pump Head and Impeller are molded
Nylon . . . Coupled with the Famous
Little Giant Power Unit which is Hermetically
Sealed in oil . . . for long trouble
free service . . . needs no lubrication.

Submersible Pump



* Ideally suited to air conditioning and many recirculating,
agitating and other liquid handling needs.

Condensate Remover



Designed to remove condensate from refrigerated
air conditioning units . . . equipped with the
hermetically sealed Little Giant Recirculating Pump
. . . needs no added
lubrication. Can also be
used for Sump Draining.

- Positive displacement electric switch and float
- Corrosion resistant finish throughout
- Completely automatic
- Available in 2 sizes
- Small and compact
- Quiet in operation

Write today for catalog sheets, specifications and prices

LITTLE GIANT VAPORIZER CO., INC.
5101 Classen Blvd., Oklahoma City, Okla.
or Consult Your Nearby Dealer

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MAY, 1956 • COMMERCIAL REFRIGERATION

SEND FOR YOUR FREE CATALOG TODAY

Here is an illustrated, descriptive 12-page catalog that will give you all the facts and specifications on Dover towers. And it's yours absolutely FREE . . . no obligation whatsoever! Just fill in and mail the coupon. That's all!



DOVER MFG. CO., Inc.

Dept. 101, 3117 Weatherford Ave.
Independence, Missouri

- Please send me my copy of the Dover Complete Line 12-page Catalog.
- Please send me the name of my nearest Dover representative.

Name _____

Firm _____

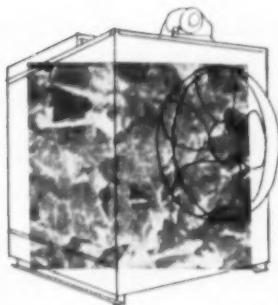
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City _____ Zone _____ State _____

In Its Complete Line of Packaged Cooling Towers,

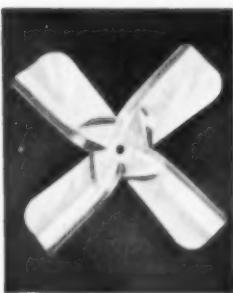
DOVER AND ONLY DOVER

Gives You All These EXTRA FEATURES at NO EXTRA COST



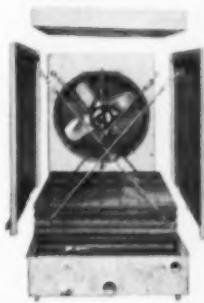
**HOT-DIP GALVANIZING
for Longer Life**

All metal parts on Dover cooling towers are hot-dip galvanized after fabrication. This heavy zinc coating eliminates costly rust and corrosion problems. You pay nothing extra for this rugged finish — standard on all Dover towers.



**STAINLESS STEEL FANS
Stop Fan Failures**

Every Dover horizontal induced draft cooling tower (Series CF) is equipped with a stainless steel propeller fan and shaft. The savings in maintenance alone, with this distinctive Dover feature, makes Dover the most economical tower you can buy.



**"TAKE-APART" FEATURE
Enables Installation In Hard-to-Reach Spots**

Basement or other "hard to get at" locations are no longer a problem! By virtual elimination of bolts, all Dover towers can be taken apart rapidly and reassembled right on the job site. Unique design, using adjustable tie-rods, makes this possible.

DOVER . . . AMERICA'S NEW STANDARD FOR PACKAGED COOLING TOWERS

WHATEVER YOUR COOLING TOWER NEEDS . . . THE ANSWER IS DOVER



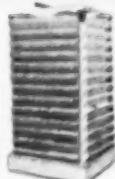
**Series V
VERTICAL INDUCED
DRAFT TOWER**

. . . with centrifugal blower. Ideal for those installations where space is a factor. Piping is held to a minimum. Super-quiet in operation. Sizes from 5 to 100 tons.



**Series CF
HORIZONTAL INDUCED
DRAFT TOWER**

. . . with propeller fan. Neat design, rugged construction, efficient operation. Ideal for small air conditioning and refrigeration installations and for jacket water or compressor cooling. From 2 to 100 tons.



**Series K—All Steel
Series S—Steel & Redwood
NATURAL DRAFT TOWERS**

. . . available in either all-steel construction which meets municipal fire codes, or the somewhat lower-priced combination steel basins and crowns with redwood posts and louvers. From 3 to 100 tons. Both have Dover bolt-free construction.

Circle No. 58 on Reader Service Card



GET PEAK PERFORMANCE

THRU and THRU

buy Sporlan Catch-Alls

The Perfect Filter-Drier

with the Famous Molded Porous Core

Yes, it's easy to see why **only** Sporlan Catch-Alls can offer you Thru and Thru Peak Performance.

One look at these famous molded porous Catch-All cores, with their huge tri-dimensional filtering areas, and you know why Sporlan offers Thru and Thru Filtering... instead of just ordinary straining.

You can see, too, why they cannot powder... cannot pack, and why the refrigerant cannot by-pass or channel around them.

Being molded of minute particles of a highly efficient desiccant, double activated, then immediately sealed...they dry the refrigerant down to an extremely low end point, a point so low that any remaining moisture is absolutely harmless.

Harmful corrosive acids found in most systems today are adsorbed and retained within the cores themselves.

So... if you want perfectly clean, perfectly dry refrigeration and air conditioning systems... Buy Sporlan Catch-Alls, the Perfect Filter-Drier, and Get Peak Performance Thru and Thru.



Ask your wholesaler for the
Sporlan Bulletin 40-10 today!

You'll find Catch-Alls available
in progressive sizes from
3 to 192 Cu. In. in flare
or sweat connections.

SPORLAN
T
V
F

VALVE COMPANY 7525 SUSSEX AVENUE ST. LOUIS 17, MO.

EXPORT DEPARTMENT

89 BROAD STREET NEW YORK 4, NEW YORK
Circle No. 59 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

**PROVIDES UNIFORM
CONSTANT TEMPERATURE
IN ANY TRUCK BODY!**

A SURE SIGN OF
DEPENDABLE REFRIGERATION



**For All High Temperature Applications
NO SPOILAGE! NO LOSS!**

"Holdover for Stopovers"—available in models providing partial or complete holdover. Utilizes a minimum of floor space. Compact, light in weight, simple in operation. Easily installed within the truck body in a manner of minutes.

Let Dole engineers show you how a *Truk-Cel* Unit can fit your needs—and do a better job!

Truk-Cel

**EUTECTIC
BLOWER
UNITS**



Write for particulars
on *Truk-Cel* Units.
Ask for
Engineering Catalog CBE.

DOLE REFRIGERATING COMPANY
5942 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.
In Canada: Dole Refrigerating Products Limited
44 Elgin Street, Brantford, Ontario
Circle No. 60 on Reader Service Card
& AIR CONDITIONING • MAY, 1956

KNO-DRAFT

OVERHEAD



AIR DIFFUSERS

BEAT GRILLES ALL WAYS

FOR EFFICIENCY: Kno-Draft Type ABC Air Diffusers mix five parts of room air to every part of supply air—within just a few feet of the diffuser. This is *more than twice the mixing* the average grille can do, handling the same volume of air.

FOR CUSTOMER SATISFACTION: All the air mixing Kno-Draft does is well above the heads of room occupants—there are *no drafts*, and temperature is uniform throughout the room. This is important for both summer cooling or winter heating.

FOR PROFIT: Exclusive snap-lock assembly cuts installation time. Special gasketing prevents leakage. Air volume adjustments can be made after installation. Kno-Draft Type ABC installations are quick and easy to make. And the superior advantages of this method of air distribution lift you out of price competition.

Get all the facts. Mail the coupon today. Connor Engineering Corporation, Danbury, Conn.

CONNOR

ENGINEERING
CORPORATION

kno·draft®

-----overhead air diffusers-----

CONNOR ENGINEERING CORPORATION
Dept. C-56, Danbury, Conn.

Please send complete information about Kno-Draft Type ABC Air Diffusers.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 61 on Reader Service Card

Large *Cuvette*

by **KRAMER**



HINGED PAN quick and easy access

Praised for years by installation and service men.

Built-in Heat Exchanger

NO RUSTING — polished
aluminum casing



SMALL CURVETTE
800 to 5,600 BTU's Per Hour



COOLMASTER
2,500 to 60,000 BTU's Per Hour



RADIAL
2,500 to 23,000 BTU's Per Hour



KAY-TEE
2,500 to 12,000 BTU's Per Hour

WRITE NOW
FOR
BULLETIN C-192-7

KRAMER TRENTON CO. • Trenton 5, N.J.

Circle No. 62 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

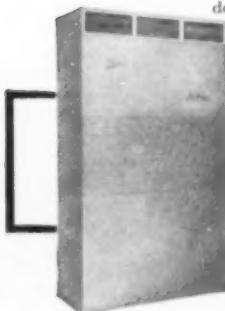


Airtemp Dealerships Now Open! Can you qualify under Airtemp's **BIG NINE** plan?

Here's good news from Airtemp! Increased plant facilities and new Airtemp sales records make dealer expansion a must in certain areas. Can you qualify under Airtemp's "Big Nine" Dealer Franchise Plan? If so, you will handle a product with outstanding consumer preference, receiving all the engineering, sales and financing assistance you need—plus national and local advertising that bring sales "leads" directly to you! However, you must qualify under the "Big Nine" Plan. You must have—and demand—integrity, experience, and leadership potential. Call the Airtemp distributor nearest you or write for complete information on AIRTEMP'S "Big Nine" Dealer Franchise Plan.

Send for Free Booklet Today!

Ask for your copy of "The Airtemp Story—an objective view of your future as a dealer in air conditioning and heating." It explains the Airtemp "Big Nine" Dealer Plan in detail. Write: Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



>
**THE
FORWARD LOOK IN
AIR CONDITIONING**

THE COMPLETE WATER-COOLED OR WATERLESS LINE

Airtemp gives you a big choice in both waterless and water-cooled "packaged" air conditioners. 13 sizes from 2 H.P. to 30 H.P.

AIRTEMP BUILDS AIR CONDITIONING FOR EVERY BUSINESS REQUIREMENT

Circle No. 63 on Reader Service Card

Special low-current starting costs less WHEN YOU SPECIFY



PART WINDING
START MOTORS

Here's the easy and inexpensive answer to having big motors that will start easily when starting current is limited. Part winding starting is available on all popular size Century motors up to 400 H.P., polyphase, in drip proof, totally enclosed and explosion proof frames, horizontal or vertical mounting.

For fast service from stock, call your nearby Century Distributor or Century District Sales Office.

Two 50 H.P. Century Part Winding Start motors power these unloading type air conditioning compressors. When starting, just half of the winding is energized, drawing less than two-thirds of normal starting current. In a few seconds, the full winding is connected and the motor delivers full torque at full current.



To CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri

Please send copy of bulletin "Where Low Starting Current Is Required"

Name _____

Title _____

Company _____

Address _____

City _____

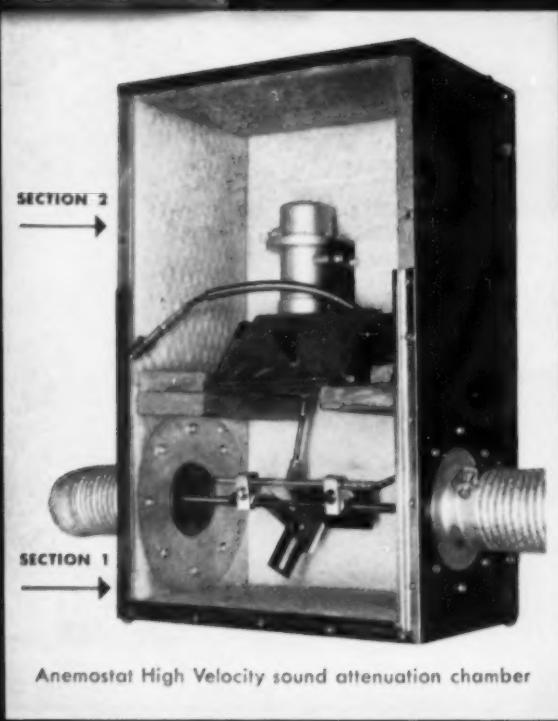
Zone _____ State _____

Performance Rated[®]
MOTORS
1/20 to 400 H.P.

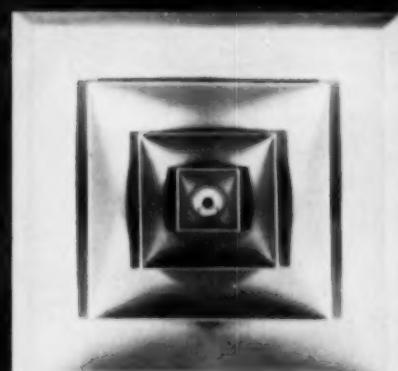


1806 Pine Street • St. Louis 3, Missouri • Offices and Stock Points In Principal Cities
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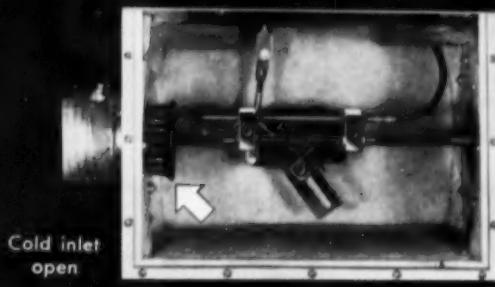
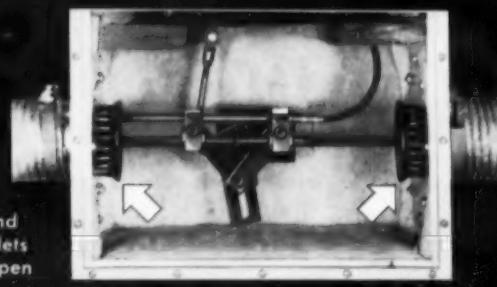
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Anemostat High Velocity sound attenuation chamber



Hot inlet open in Section 1.
Anemostat in place covers Section 2.



How to mix and diffuse high velocity air automatically

The Anemostat High Velocity sound attenuation chamber is divided into two sections. Both hot and cold air from the main risers enter Section 1, which is an acoustically lined blending chamber, in which the volumes of air are controlled by the Anemostat serrated rocket-socket valves. When the thermostat is set, the rocket-socket valves move slowly back and forth, thereby adjusting the volume of air supplied through the hot and cold inlets. The velocity of the air which enters Section 1, at from 3500 to 6000 fpm, is automatically reduced by expansion.

As the blended air meets the temperature

requirements of the thermostat, it passes through a baffle arrangement into the acoustically lined Section 2 of the chamber, further reducing the db rating of the air.

The air then passes through the Anemostat Air Diffusers, where the aspiration effect causes mixing of room and supply air within the diffuser, resulting in further temperature equalization. The diffuser then delivers to the occupants of the room draft-free air at the desired temperature.

The Anemostat All-Air High Velocity distribution system offers other important advantages. It can be used with smaller

than conventional ducts. It can be installed faster and at less cost. It requires no coils, thus eliminates leakage, clogging and odors. Furthermore, Anemostat round, square and straightline diffusers with high velocity units blend into a wide variety of architectural designs.

Write for 1956 New Products Bulletin and Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N.Y.



Anemostat: The Pioneer of All-Air High Velocity Systems



Exterior of Series 1272 single function control available for either low or high pressure.



Series 1273 dual pressure control. Lockout and manual reset available for either low or high pressure cut-out.

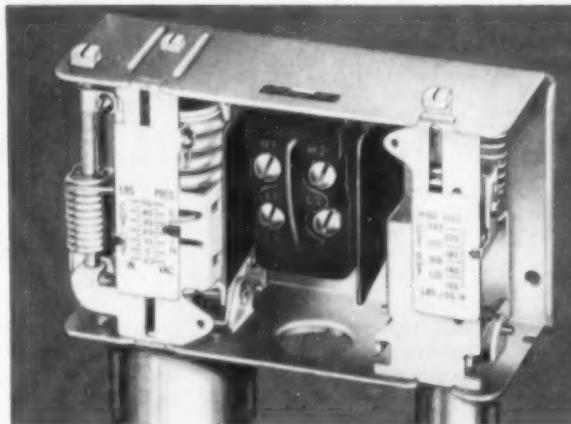
PENN REFRIGERATION CONTROLS ELIMINATE MOTOR STARTERS

Extra heavy duty Series 1272 and 1273 pressure controls have the highest rating in the industry!

Specifically designed for commercial refrigeration and air conditioning jobs, the Series 1272 and 1273 are rated at 3 H.P. for single phase compressors and at 5 H.P. for polyphase compressors.

Thus, cost of contractor is eliminated if motor has built-in overload protection. If motor requires external overload protection, the motor starter can be replaced by the more economical "manual starter." So . . . in either case, these Penn controls save you money!

In addition, the Series 1272 single function and Series 1273 dual function controls meet the most modern maximum test requirements. And, there are features such as . . . self-cleaning, snap-acting contacts . . . direct-reading calibrated scale for simple cut-in and cut-out setting . . . and many more. So, don't settle for less. Get the full story from your wholesaler or compressor manufacturer.



Interior of Series 1273 illustrating sturdy contact block with easy-to-reach wiring terminals.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING,
GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 66 on Reader Service Card

BNU'S TRENDS·OPINIONS·REPORTS

CENTRAL SUMMER COOLING can be applied economically to any home heated by a hot water system, the Institute of Boiler and Radiator Mfrs. reports on the basis of research sponsored by it at the University of Illinois. The new method of central summer cooling utilizes a cooling system split from the hot water system and operating on the chilled water cooling principle. IBR says it is applicable to virtually all of the estimated 10 million new and old homes in the U.S. heated by hot water or steam systems.

COMMERCIAL FREEZING may give us cheaper, better bread. This practice could reduce staling, loss on unsold loaves, costly night baking. Research to develop more technical information on bread freezing is being carried out by the Western Utilization Research Laboratory of USDA in cooperation with the Refrigeration Research Foundation. Findings to date show that maximum storage temperature for top quality bread is 10 F for short periods (about a week) and zero F for extended storage. Bread is best when it is frozen and defrosted as rapidly as possible.

UNDIVIDED ATTENTION to air conditioning will be the policy at Mitchell Mfg. Co. from now on. The company sold its lighting division to Compco Corp., and its electronics division to Esco Electronics, Inc., both Chicago companies. J. W. Alsdorf, president of Mitchell, said that all the company's efforts now will be devoted to developing and expanding its entire line of air conditioners—room models, store coolers and residential central type systems.

TECHNICAL-SOUNDING TERMS like "atomic irradiation" may soon be added to the vocabulary of American housewives—and refrigeration men. A recent issue of "Atomic Activities", published by the National Securities & Research Corp., says that in the preservation of food, refrigeration may eventually be supplemented by atomic irradiation, a sterilization process by which atomic energy rays deactivate or kill the micro-organisms which cause foods to spoil. Atomic irradiation techniques have already been successfully applied to foods. Potatoes, for example, have been irradiated so that they can be safely stored for almost two years.

AUTOMOTIVE AIR CONDITIONING is credited with producing "phenomenal improvements in sales, efficiency and morale" by executives of Morton Foods, Dallas, manufacturers and distributors of potato chips and other packaged foods. N. A. Cadell, vice president in charge of sales, said that the company's sales had increased at least 25% since last July, when it equipped its salesmen's cars with air conditioning units. Before their cars were air conditioned, salesmen had to go to hotels, take showers and change clothes before making calls in each town. With air conditioning, this was not necessary, and the men made more calls—and more sales. The company has also air conditioned about three-fourths of all its truck cabs, and has found that it increases both driver efficiency and safety.

THE REFRIGERATOR MAY NEVER rival the furnace as the metal treater's most important asset. However, subzero treatments in the past 15 years have become a topic that no metalworker can afford to ignore. This is so not only because low temperatures do some things that high temperatures can't do, but also because extreme cold can improve product quality and reduce the cost of processes which require the use of heat. So far, few production processes necessitate the use of temperatures below -150 F, but with equipment now available the temperature of a metal component can be brought to within a fraction of absolute zero. According to one recent survey, less than 20% of the plants that have heat treating facilities now have cold treating equipment, despite the fact that at least 50% of these firms could make effective use of subzero processes. Here's a market that qualified firms might well explore.

5000

Service Contracts— and at a Profit!

GETTING customers is only half the battle for a commercial refrigeration and air conditioning contractor. Keeping them is the other—and equally important—half. That's why A. S. Johnson Co., Inc., of Washington, D. C., places so much emphasis upon its well-planned and hard-sold program of preventive maintenance.

"We have long maintained that it is vitally important for a refrigeration and air conditioning contractor to keep servicing the customers he sells if he is to get the greatest returns from his business," explains president Arthur S. Johnson. "We feel that unless we can keep a customer operating on a service contract for a minimum of 5 years we fail to derive the fullest possible return from the sale itself. As a result, our records

CONTRACT CARD is checked by service dispatcher as each call is received. This enables him to properly make out the work order.

SALES PITCH on "All Year Protection Service" is given by A. S. Johnson, president of the firm that bears his name, to a new equipment customer.



5000 CONTRACTS

stant contact between the customer and our organization plays an important role in our over-all sales function."

Cost of the "All Year Protection Service" policy that the Johnson firm sells its customers is based upon the number, type, and condition of the individual units that are to be included in the coverage. Consequently there can be no set price pattern and it is necessary for a Johnson serviceman to inspect the equipment before an annual service charge can be determined.

Service Goes With Sales

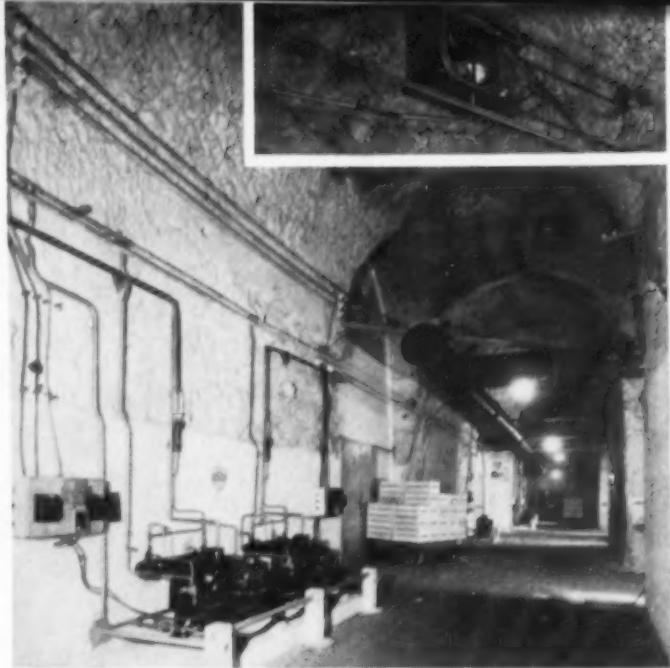
"This job is made much easier," Johnson explains, "when we attempt to sell a customer a service contract at the same time that we sell him some equipment. In such cases the cost of the service policy can be calculated in advance, so all the salesman has to do is sell the customer the idea of buying this annual protection policy at the price already established."

Names of all new customers who decline to buy a service contract at the time of the equipment sale are placed in a special file, and they are periodically sent literature describing the company's complete service facilities and promoting the "all year protection service" plan. These mailings frequently result in service calls from distressed equipment owners who ultimately sign up for service on a contract basis.

Basic Coverage Offered

"We have worked up a standard complete-coverage service contract which we use as a basis for all of our operations in this field," says Johnson, "but this is never considered as a fixed and unalterable policy. Naturally we try to sell this complete coverage policy to all customers, and about 30% of them buy this type of a service contract. It provides the customer with maximum protection, but cor-

Continued on page 98



GROUPS OF COMPRESSORS like these, each operating independently, provide refrigeration for the underground storage area. Large ventilation ducts shown near gallery ceiling assure complete air change every 45 minutes. One of the evaporators used to cool the 20'-high rooms is shown in inset.

Natural Cooling Needs Help

WHEN the Wholesale Fruit Cooperative Society of Paris, France, needed extensive storage for their produce, they were pleased to hear of some large underground tunnels that were available for use under the Meudon Hills, in Issy-les-Moulineaux, a Paris suburb. It was thought by company officials that this ready-made underground storage area would make an excellent place for food preservation.

The three miles of tunnels had an interesting historical background. For centuries, chalk had been quarried here for use in pottery making and as a polish for gold, silver and other non-ferrous metals. Over the years the demand for chalk completely slackened, and until World War II mushrooms were grown in parts of the tunnels. Then after the war they again lay idle.

After inspection of the tunnels, the Cooperative Society acquired them and moved in crates of food for keeping. Much to their disappointment, they soon found that food would not keep satisfactorily due to the variations of temperature and humidity.

At this point, mechanical refrigeration seemed to be the logical answer to the problem. After investigating the application a complete system was installed. It consisted of ten Frigidaire compressors and 37 ceiling-mounted forced air evaporators. The refrigerating capacity thus provided allows storage of 885 metric tons of apples and oranges in 282,512 cu. ft. of space. Daily turnover amounts to 80 metric tons. The storage rooms are held down to 36 F and the humidity is closely controlled at 92%.

From a technical standpoint, this achievement was not an easy one. As one of the installing engineers said, "refrigerating deep underground is an almost impossible challenge. The surrounding ground reacts as a heat tank. For all practical purposes, one can assume he is attempting to refrigerate a room with walls of unlimited thickness."

WORKS LIKE A DREAM!



The NEW Frigidaire MODULEX EXPANSION VALVE HAS EVERYTHING YOU'RE LOOKING FOR

Expect superior performance when you install the new Modulex valve. For, along with its distinctive copper-bronze finish, this valve has important advancements in its design and construction. Result: a new standard of reliability in refrigeration control!

The Frigidaire Modulex valve installs anywhere, operates in any position. It's easy to adjust, and it holds its setting. Saves time—saves trouble—and protects your profit.
*FRIGIDAIRE DIVISION, General Motors Corporation,
Dayton 1, Ohio.*

The Frigidaire District Headquarters in your area has a complete stock of refrigerant controls for every purpose. Make it your headquarters for quality installation accessories and replacement parts. One-stop service means economy for both you and your customers.

FRIGIDAIRE

parts and accessories



THRU-DRIERS



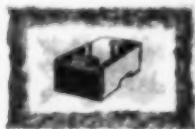
CONTROLS



FITTINGS



SHAFT SEALS



RELAYS

Circle No. 67 on Reader Service Card

COLD and handy is
canned beer at State
Liquors, kept in the self-
service case converted
from standard frozen
foods use.

FREE ice cubes for por-
tions is another of the
beverage store's services.
Ice cube maker is es-
pecially popular with
women customers.



Colorado Liquor Store finds that...

"Refrigerated Extras" Boost Business

MAXIMUM utilization of refrigeration facilities as a merchandising asset has helped the management of a Grand Junction, Colo., liquor store cash in on the influx of uranium prospectors into this area, with the result that since 1951 this store has increased its sales volume by more than 600%.

It was in this year that Dick Stranger, owner of State Liquors, moved from a "hole in the wall" location on a Grand Junction side street to a remodeled garage in the downtown shopping area. At the time of the move, the store carried an inventory of less than \$8000. Now State Liquors carries a \$40,000 inventory and turns it from six to seven times a year.

Despite the fact that the rich uranium strikes in this area have helped to boost business generally, Stranger is firmly convinced that a large portion of his shop's sales increase is a direct result of his \$5000 investment in refrigeration equipment.

Ever since he first entered the package liquor retailing business back in 1946, Stranger had noted the

stimulating effect which proper refrigeration had upon the sales of canned and bottled beer and mixes. On the basis of these observations, he reasoned logically that refrigeration could be effectively used to merchandise other items as well.

Consequently, when Stranger moved into his new location he was determined to utilize refrigeration in every way possible to promote sales of his merchandise. As a result, the installation of refrigeration facilities accounted for better than half of the \$9700 spent in converting the garage to its new role.

First expenditure was \$750 for a 22-cu.ft. refrigerated cabinet for storage of ready-to-sell mixes at ready-to-use temperatures. This three-door refrigerator is built into the center of the wine shelving which extends along one side of the store. The mixes are deliberately kept entirely separate from chilled beer, on the theory that two different types of customers are represented. Likewise, this case was deliberately located across the store from the bottled liquor section,

so that liquor buyers would be exposed to the possibility of impulse wine sales when they came over to pick up their mixes.

The more fact that the store makes these mixes available at serving temperature has created a lot of extra sales, according to Stranger.

The second refrigeration application made by State Liquors was the installation of a self-service display case of the type normally used for frozen foods. The temperature control on this case has been adjusted, however, to maintain a temperature of from 38 to 40 F. Here in this case the store maintains a 25-case stock of canned and bottled beer, chilled as low as is practicable and readily available for self selection.

To ensure the store's reputation for never running out of chilled beer, which Stranger regards as a merchandising "must" in his business, a two-compartment walk-in cooler was built immediately behind the partition which terminates the sales area of the store. Constructed of varnished hardwood at a cost of \$1100, this cooler has a capacity of 200 cases of beer.

Two-Temp Walk-In Cools Plenty of Beer

First section of this walk-in is a pre-cooler maintained at 35 F for full cases, while the section nearest the self-service cabinet is filled with broken cases held at around 40 F for use in restocking the customer displays in the front of the store. The lower temperature in the pre-cooler makes it possible to pull down full cases from room temperature more quickly. As each case is moved out of the 40 F section for display or sale, a fresh case is loaded into the pre-cooler to keep the supply of cool beer constant at all times.

A noteworthy merchandising asset incorporated in the refrigeration layout of the State Liquors store is

the automatic ice cube maker which was located adjacent to the self-service beer display case. This unit was installed simply as a convenience and a service to customers, and no charge whatever is made for the ice cubes it produces. Customers of the store are invited to help themselves to ice cubes.

Use of the unit in this way has proved to be a potent builder of good will, particularly in the warm weather months and especially among the store's women customers. In fact, Stranger has noted repeated instances in which customers have driven a considerable distance to his store to avail themselves of the free ice cubes and properly chilled mixes, along with their liquor purchases.

Chilled Liquor Brings Extra Sales

Perhaps the most unusual application of cooling equipment in this well refrigerated store is the converted wall dairy case located directly behind the cash register. Part of this case is turned over to storage of limited supplies of beer and certain types of wines intended for service at below room temperatures. Prominently featured in the center section of this cabinet above counter level, however, is a display of pints and half-pints of popular brands of whiskeys.

First-time visitors to the store seldom fail to note this unusual display and to express curiosity about it. This gives Stranger an opportunity to explain that a lot of his customers are men who drop in on their way home from their jobs, still in their working clothes. They don't want to stop off at a bar, he points out, but still they want a cold, stimulating drink. The small bottles of whiskey, chilled down to below 40 F, seem to provide a welcome answer which keeps them coming back for more.



NO MORE MILK goes into this converted dairy case. Instead, the center section (see arrow) cools pints and half-pints of whiskey for convenience of customers who like liquor cold and straight. This refrigerated feature has proved a popular source of additional business.



POPULAR MIXERS are stored in this built-in refrigerated case, just below shelves on which wines are displayed at room temperature. Whiskey-buyers must visit the "wine side" for mixers. This promotes sales of wines.

Why you can be sure of

**LASTING, LEAKPROOF
PERFORMANCE**

**with American
Vibration Eliminators**



First... look at the core. It's seamless, corrugated tin bronze tubing, quality-controlled through every manufacturing stage. This copper-tin alloy is specially engineered to stand up under vibration while carrying gases and liquids under pressure. Because it's *seamless*, there are no joints or laps where leaks can start.

Next... for extra strength and durability, it's covered with bronze wire braid securely brazed in place. Sizes through 2" have a single wire braid covering, larger sizes a double braid covering for added strength.

Then... before it's shipped, the final assembly is pressure-tested, oven-dried, and sealed in a plastic envelope to keep out dirt and moisture.

American Vibration Eliminators are sold by leading distributors everywhere. For descriptive folder of standard sizes with installation suggestions, write to *The American Brass Company, American Metal Hose Division, Waterbury 20, Connecticut. In Canada: The Canadian Fairbanks-Morse Company, Ltd.*



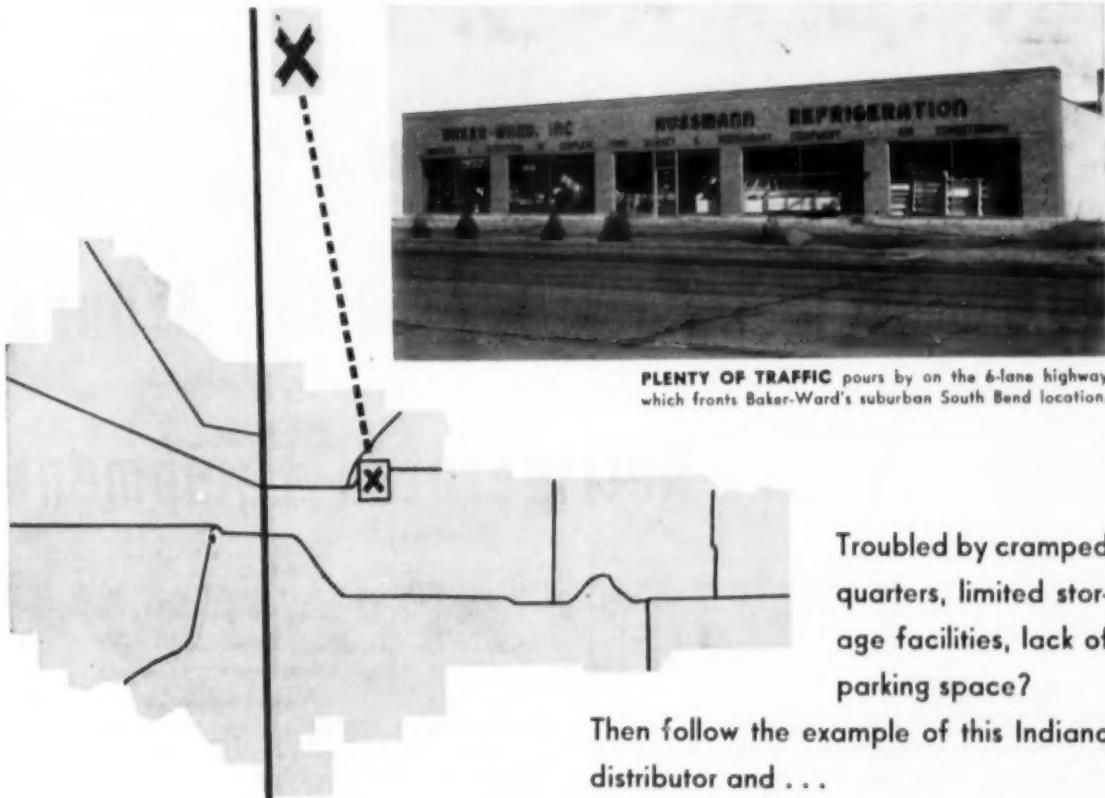
Now! American Vibration Eliminators are listed by Underwriters Laboratories through sizes 3 $\frac{1}{2}$ " O.D. Each VE is sealed in an air-tight polyethylene envelope assuring factory-clean condition.

for American Vibration Eliminators

see your

ANACONDA

distributor



Troubled by cramped quarters, limited storage facilities, lack of parking space?

Then follow the example of this Indiana distributor and . . .

GET OUT OF TOWN

IF we had it to do all over again, we'd never locate in the heart of the city." That's the capsule comparison offered by D. E. Baker, Sr., secretary-treasurer of Baker-Ward, Inc., South Bend, Ind., distributor of commercial refrigeration equipment, when asked about the relative merits of the firm's original downtown location and its present modern facilities situated four miles outside the city limits.

Like many similar organizations, the Baker-Ward firm covers a sizeable territory consisting of some 15 counties, six in northern Indiana and nine in southern Michigan. It specializes in selling a full line of food refrigeration and food service equipment, as well as packaged air conditioning.

"A business like ours simply doesn't need a downtown location," Baker points out. "What we do need is ample space to display and store the bulky equipment which we sell, adequate facilities for receiving and delivering shipments of this equipment, a reasonable amount of parking space, and plenty of 'elbow room' in which to conduct our day-to-day operations.

"None of these things," he points out, "are avail-

able in the average downtown location except at a prohibitive cost."

Baker-Ward started in business in 1947, at a time when good business locations were difficult to obtain. Being a brand new firm, the management felt that they were in no position to buy property, and the best deal they could find on a rental basis was an 18 x 60' building at the corner of Hill and Madison streets, right in the heart of South Bend's business section.

Obviously, a building of this size couldn't provide the amount of storage space required for a commercial refrigeration distributorship, so the firm found it necessary to rent a 30 x 110' warehouse space some 17 blocks away from the headquarters building. This space was used for warehousing all used equipment and some new merchandise.

Even this wasn't the complete answer, however, for commercial storage space still had to be leased to accommodate some fixtures that were too big to pass through the doors of the firm's own warehouse. Equipment taken in trade which was not resalable was

Continued on page 99

Here's How To Lick

The Problem of Condensation Around Refrigerated Equipment

CONDENSATION occurs when the temperature of a vapor is reduced until it changes to a liquid. Sufficient cooling may occur around refrigerated equipment to cause some degree of condensation on the outer surfaces of cabinets, or dampening of walls or floors near the refrigerated cabinet. Particular difficulties may be encountered in coolers and refrigerated display cases in food stores, dairy products retail stores, soda fountains and drug stores.

Manufacturers of refrigeration equipment attempt to design and construct equipment to prevent moisture accumulation. The operator of refrigeration equipment can further reduce condensation problems by proper management. Usually a few simple practices can be followed which will eliminate most of the problem. The commercial refrigeration dealer can do much to instruct his users in such practices.

Condensation problems are associated with refrigeration because of the lower temperatures involved. At a given temperature air can hold only so much moisture. When the temperature of the air is lowered sufficiently the "dew point" is reached. That is, a cooling process takes place which lowers the temperature of the air and the moisture it contains to a point where some of the moisture condenses in the form of dew, sweat, or fog. For example, if air is 70 F and has a relative humidity of 40%, a condition which is common in many areas of the country, condensation will

occur if the air is cooled to 56 F. (See Figures 1 and 2.) Thus, in this instance, any surface having a temperature of 56 F or below will be moist from condensation. If condensation takes place on a surface with a temperature below 32 F, ice or frost forms.

The troubles resulting from condensation are well known. To review them, any or all of the following difficulties have occurred: unsightly, streaked surfaces; paint peeling; plaster deterioration; soaking and rotting of wood floors, structures, and frame work; soaked and damaged paper cartons; dampness and damage to store's products or materials; slippery floors; bacteria and algae growth resulting in unsanitary and unsightly surfaces; corroded metal frames and surfaces; and ice accumulation in stagnant air pockets.

Where any of these troubles have occurred in connection with refrigeration cabinets or walk-in units in stores or other buildings, the sketches in Figs. 1 and 2 illustrate the most likely situations. Note that the main cause is the lowering of the temperature of air of high humidity. This high humidity may be due to weather conditions or to a local high source of moisture or steam, such as may occur in kitchens, restaurants, drug stores, or grocery stores, from washing processes, dryers, steam tables, coffee urns, water sprays, etc. The condition may be aggravated by stagnant air pockets around the equipment, especially along outside wall locations of the building.

To avoid such condensation requires either the lowering of the humidity or the supplying of additional heat to the space. The installation of an air conditioning system will usually lower the humidity considerably except perhaps in regions of stagnant air where the trouble could still persist. Humidity also may be low-

The material contained in this article is reprinted from Extension Folder F-198, "Condensation Around Refrigerated Equipment" by D. J. Renwick and C. W. Hall, through the courtesy of the Cooperative Extension Service, Michigan State University.

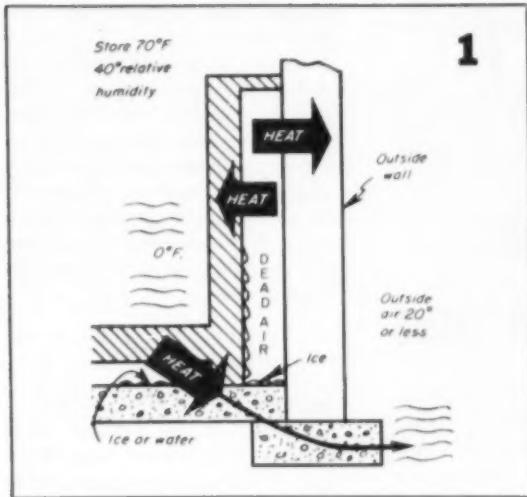


FIG. 1 Condensation between cold storage and exterior wall in winter.

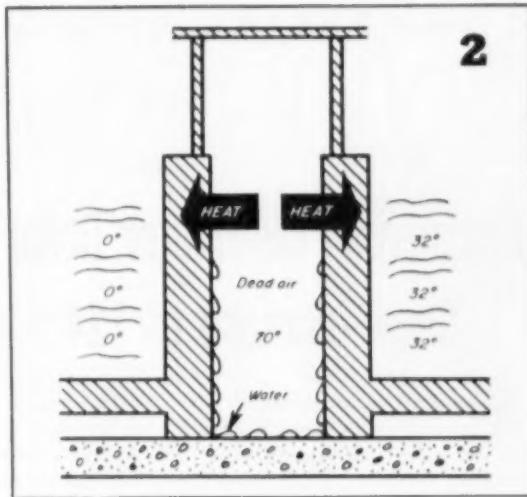


FIG. 2 Condensation between two refrigerated cabinets back to back, summer or winter.

FIG. 3 Corrective measures taken to prevent condensation between cold storage and exterior wall in winter.

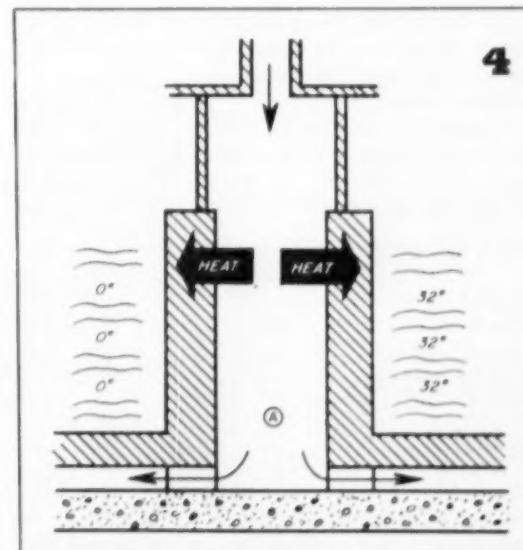
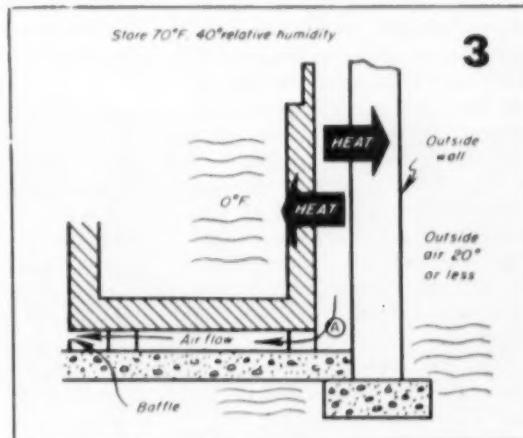
FIG. 4 Corrective measures to eliminate condensation between two refrigerated cabinets back to back.

ered by exhausting the moisture at its source through proper hooding or venting of equipment that discharges steam or moisture during its operation. This method is almost always profitable. The addition of heat to the space, however, often may be the most simple and economical way of improving a troublesome condensation situation.

The simplest way to introduce heat to damp spaces is by providing for good air circulation all around refrigerated cabinets, especially between the floor and bottom of the cabinets, and also in the space between the back of the cabinet and the wall or adjacent partition surface. Natural gravity air circulation is easily and economically arranged for by providing about 3 inches of air space behind and under the cabinet with few restrictions and no complete blocking of free air flow.

Several manufacturers of refrigerated cases and cabinets recently have provided for more positive air circulation by incorporating back-wall spacers and under-frame spacing as part of their cabinet designs, so that air motion is assured behind and underneath the equipment. Some designs include one or more forced-air fans of a small size. This may be recommended for situations where condensation tendencies are most severe. A troublesome condensate situation also might be improved by the addition of auxiliary heat to the space by means of steam pipes, hot water pipes, electric strip heaters, or even light bulbs. However, auxiliary heating arrangements are usually more

Continued on page 134



COMMERCIAL REFRIGERATOR SALES NEWS

Commercial Distributor Dollar Sales Show Increase of 124% in 6 Years

A six-year running record of commercial refrigeration distributor sales maintained by the National Commercial Refrigerator Sales Association, using 1949 as the base year, reveals an increase of 124% in total dollar sales as of the end of 1955. Dollar net profit before taxes shows an increase of 84% over 1952, which was used as the base year for this portion of the survey because figures were unavailable before that time.

Data included in this six-year comparison was compiled by the association on the basis of information submitted quarterly by members participating in NCRSA's continuing survey of business conditions.

Year-end inventory, the survey shows, rose from the base of 100% in 1949 to 220% in 1955, while accounts receivable at year's end showed a rise from 100% to 193% in the same period.

A year-by-year breakdown of figures in all four of these categories is presented in the accompanying table.

Comparative figures for 1955 and 1954, released at the same time as the six-year summary, showed the following results: total

dollar sales, 20.71% increased; dollar net profit before taxes, 35.17% increase; year-end inventory, 6.28% increase; year-end accounts receivable, 15.79% increase.

Total dollar sales for the fourth quarter of 1955 showed a 42.56% increase over those for the same period of 1954.

RAY ROSEN SETS UP EQUIPMENT SUBSIDIARY

Raymond Rosen & Co., Inc., Philadelphia appliance distributor, has announced the organization of a subsidiary corporation, Raymond Rosen Equipment Co., to serve dealers in air conditioning, heating and commercial refrigeration, as well as builders and contractors in kitchen equipment and appliances.

Max A. Myers heads the new company as president, with Jack Rosen as vice president and Edward H. Rosen, secretary and treasurer.

Myers, from 1935 to 1942, was general manager of Trilling & Montague, Philadelphia appliance distributor. For approximately 13 years he has been district sales

	1949	1950	1951	1952	1953	1954	1955
TOTAL DOLLAR SALES	100%	122%	123%	146%	167%	186%	224%
DOLLAR NET PROFIT BEFORE TAXES	Not Available	Not Available	Not Available	100%*	106%*	136%*	184%*
INVENTORY (DEC. 31)	100%	147%	157%	163%	182%	206%	220%
ACCOUNTS RECEIVABLE (DEC. 31)	100%	127%	121%	134%	142%	167%	193%

*Since figures on Dollar Net Profit were not collected until 1953, the base year (100%) is 1952, rather than 1949.

manager for Uniflow Mfg. Co., Erie, Penn.

In its Commercial Heating and Refrigeration Div., headed by William C. Gleason, sales manager, the new company will handle Remington unitized incremental air conditioning systems, Kelvinator commercial refrigeration equipment, Westinghouse air conditioning equipment, and Westinghouse heating systems.

NCRSA OFFICERS MEET

Officers of the National Commercial Refrigerator Sales Association will hold their annual mid-year meeting May 10 at the Statler hotel, Cleveland, Ohio. Plans will be made at that time for the program and activities of the group's 10th annual convention scheduled to be held Dec. 3 and 4 at Hotel Mark Hopkins, San Francisco.

Also scheduled for Cleveland on the day previous to the NCRSA officers session is a meeting of the Joint Relations Committee, consisting of representatives of both NCRSA and the Commercial Refrigerator Manufacturers Association.

Both of these meetings are scheduled to coincide with the annual convention of Super Market Institute to be held in Cleveland at that time.

STRAUS-DUPARQUET BUYS S. & M. SCHWARTZ & CO.

Acquisition of the assets of S. & M. Schwartz & Co., and creation of the S. & M. Schwartz & Co. division of Straus-Duparquet, Inc., has been announced today by Samuel R. Sperans, president of Straus-Duparquet. Both firms are located in New York City.

S. & M. Schwartz & Co., founded in 1913, specializes in the manufacture of commercial refrigerators. The company has also complete facilities for the design, production and distribution of a complete line of fixtures for supermarkets and all types of retail stores. Total annual sales are currently at the rate of \$1,500,000. Milton L. Schwartz, chief executive of the

It's great to be a Carrier dealer... with all these Icemakers to sell!

It's plenty tough, selling from a so-called "complete line" that consists of two or three models. Especially when you're trying to sell ice machines to a lot of different ice-users with a variety of needs.

There are no gaps in the Carrier line of Icemakers and Flakemasters. You have 11 models to sell. There's one to match every ice requirement.

What's more, there's a Capacity Certificate to cover every model, every operating condition. No vague promises of "up to so many pounds

of ice per day." Your prospect knows he'll get every pound of ice he needs when he buys a Carrier. It's certified in writing!

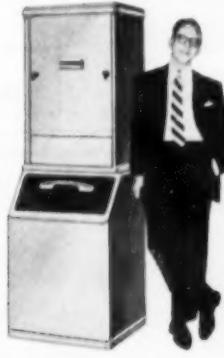
Look what else you have to sell: Icemakers that turn out cubes plus three grades of crushed ice. Flakemasters with simplified operation for making hard, dry flaked ice with certified capacities that apply to your location. Rugged, compact units! Completely automatic—even to self-cleaning! And each bearing the famous Carrier nameplate!



1 Model 26H3S-100 Icemaker



2 Model 26H3Cr-100 Icemaker



3, 4 Model 26H3S-160 Icemaker
Model 26H3Cr-160 Icemaker



5, 6 Model 26H5S-160 Icemaker
Model 26H5Cr-160 Icemaker



7, 8 Model 26H5S-240 Icemaker
Model 26H5Cr-240 Icemaker



9 Model 26L10WC-500 Flakemaster



10 Model 26L10AC-500
Air-cooled Flakemaster



11 Model 26L20WC-500 Flakemaster

It's time to call your Carrier Distributor. You'll find his name in the Classified Telephone Directory. Or write Carrier Corporation, Syracuse, New York.

Carrier

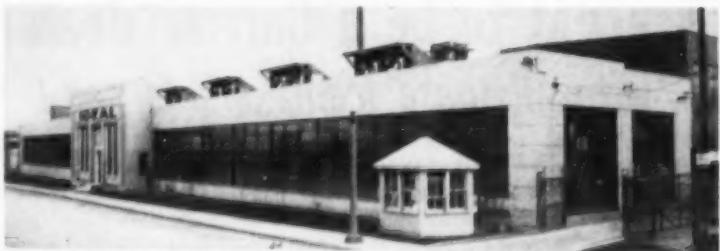
AUTOMATIC ICE MACHINES

company, will become executive vice president of the S. & M. Schwartz & Co. division of Straus-Duparquet.

Straus-Duparquet, in business since 1866, is one of the leading producers and distributors of food service equipment, refrigeration, dispensing equipment, supplies, and furnishings for restaurants, institutions, and other food service facilities. Principal subsidiary of the company is Albert Pick Co., Inc., Chicago. Consolidated net annual sales of the company are in excess of \$12,000,000.

Milton Schwartz has been a partner in S. & M. Schwartz & Co. since 1939. Following a period of military service he returned to manage the company which had originally been founded by his father, Samuel.

Schwartz has been president of the Commercial Refrigerator Distributors Association, the Eastern Refrigerator Manufacturers Association, and at present is treasurer of the National Commercial Refrigerator Sales Association.



FUTURE HOME of Ideal Cooler Corp., manufacturer of bottle beverage and draft beer refrigerated cabinets, will be this new factory in north St. Louis, Mo. Just purchased by the company, the plant will be occupied later this year, after extensive alterations have been completed. The new plant comprises about 75,000 sq.ft. of floor space on one level.

SCOTSMAN NAMES TWO DISTRIBUTORS

Two new exclusive distributors have been appointed for the Scotsman line of automatic ice machines, reports R. J. Lickteig, Sales Manager, American Gas Machine Co.

Bader Supply Co., Tulsa, will have the exclusive franchise for the Tulsa sales territory. Automatic Ice Makers, Inc., Sacramento, Cal., is the new exclusive distributor for the Sacramento sales area. This company was formerly known as F & F Sales & Service Co.

SWEDEN IN COLUMBUS

A new assembly plant in Columbus, Ohio was put in production about April 1 by the Sweden Freezer Mfg. Co. to handle milk shake making machines, Harvey F. Swenson, president, announces.

John E. Ross, procurement manager of the Seattle plant, has been assigned to head up the Columbus operation.

BUY FROM YOUR REFRIGERATION WHOLESALER

Dunhill ICE BINS
A model for every need

Capacities: Holds 200 to 4000 lbs. of ice.
Insulation: 2" of solid vegetable cork board.
Exterior: Front, top, sides and back 20 gauge stainless steel.
Interior: 20 gauge stainless steel.
Bin Top: Reinforced with $\frac{1}{8}$ " angular steel frame.
Circuit Breaker: All openings framed with $\frac{1}{8}$ " panlite.

Write for descriptive literature.

DUNHILL SODA FOUNTAIN CORP.

79-85 Walworth St. • Brooklyn 5, N.Y.
Manufacturers of Soda Fountains and Luncheonette Equipment.
Export Dept.: 39 Broadway, New York 6, N.Y.

Circle No. 70 on Reader Service Card

BIG PROFITS FOR YOU . . . AND YOUR CUSTOMERS!



Pinnacle WALL TYPE BEVERAGE CASE.

Every Store, Hotel, Restaurant, Bar Room, a customer for you, Mr. Dealer!

Wherever a Pinnacle Wall Type Beverage Case is installed, sales immediately climb. In fact, we've received letters from users who actually claim that their beverage sales have doubled. Customers are able to see at a glance what they want.

Quality made throughout, the Pinnacle Wall Type Beverage Case is available in either gleaming white life-time Porcelain or Stainless Steel.

Available in 5-6-8 and 10 foot models. Model WBS26 (pictured here) is 6-foot wide; 78" high, and 30" deep with four sliding doors. Has 50 sq. ft. of shelf area and will hold 48 cases of 12 ounce bottles. 8 and 10 foot models have 8 sliding doors and will hold 67 and 85 cases respectively. Cooling system—ceiling hung forced air evaporators.

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature!

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

Circle No. 71 on Reader Service Card

NCRSA ADDS 17 MEMBERS FROM 11 STATES, CANADA

Seventeen new distributor members from points as widely separated as Georgia and British Columbia, or Quebec and Arizona, have been added to the roster of National Commercial Refrigerator Sales Association, according to reports from association headquarters. These new member firms are:

A-1 Refrigeration, San Jose, Calif.; Black & Woodyatt Refrigeration Ltd., Brantford, Ontario, Canada; Tom Cannon Co., Columbus, Ohio; Stanley S. Cheever Co., Salt Lake City, Utah; Gardner's Refrigeration, Inc., Schenectady, N. Y.; Giriamo Refrigeration Co., Philadelphia, Pa.; Parson Refrigeration Co., Ottawa, Ontario; Planex Corp., Lubbock, Tex.

Polar Refrigeration, Vancouver, B. C., Canada; Potel Store Equipment Co., Hartford, Wis.; W. T. Rainford Ltd., Vancouver, B. C.; Refrigeration-Appliances, Inc., Atlanta, Ga.; Frank Samuels Distributing Co., Phoenix, Ariz.; Standard Agencies Ltd., Montreal, Quebec, Canada; Stearns Fixture Co., Rockford, Ill.; Storecraft, Inc., Corpus Christi, Tex.; United Refrigeration, Inc., New Orleans, La.



"The last time you set out to 'save a PRETTY penny' by repairing it yourself, we wound up with an UGLY repair bill!"

OPENS HOUSTON BRANCH

The Texas Ice Machine Co., Dallas, distributor of "Scotsman" ice machines, has opened a branch in Houston. Roy Williams is manager of the new operation.

SALES OFFICES MOVED

Sales offices for Wolverine Tube Div., Calumet & Hecla, Inc., have been moved to larger quarters in Louisville, Kentucky. The new offices at 5330 South Third Street, will become headquarters for sales representative, Jack Sheehan.

A MODEL FOR EVERY NEED!

Give your customers the widest choice! Select from the Temprite line of 14 different models, including new small economy-size Cadet coolers!



Temprite Compartment Coolers are available for either bottled water service or connection to water supply. Model PCF (illustrated) provides 3-way service—perfectly cooled drinking water, 2 large trays of ice cubes plus roomy refrigerated storage space.

Make a hit every time with the No. 1 water cooler line!

1 Standout Quality!

Temprite Water Coolers are made better to last longer . . . precision-engineered by liquid cooling experts to provide years of trouble-free service!

2 Styled to Appeal!

Temprite's smart, functional styling enhances any setting. Extra deep, anti-splash basin features stainless steel beauty and matchless durability.

3 Finest Features!

Temprite offers all these sales-building features: All-welded angle steel frame. Dual thermostats for accurate temperature control, double protection against accidental freeze-up. Hermetically sealed, lifetime-lubricated compressor. Removable front and side panels for extra easy servicing.



Temprite Products Corporation
P. O. Box 72-8 • E. Maple Road • Birmingham, Mich.
Please send me complete data on Temprite Self-Contained Water Coolers.

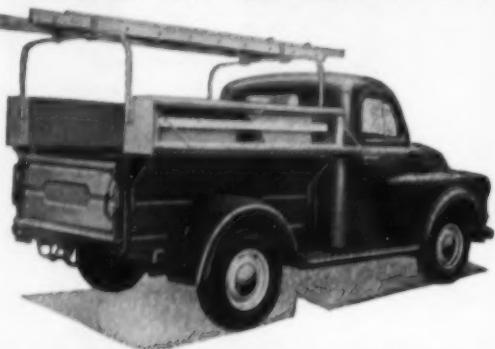
NAME _____

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CITY _____ STATE _____

Circle No. 74 on Reader Service Card

STAHL SIDE BOXES



CONVERT YOUR "PICK-UP" TO A MODERN SERVICE TRUCK!

Quickly...and at low cost...you can mount these All-Steel, Welded Side Boxes on ANY MAKE OR MODEL of pick-up truck. Keep tools and equipment dry, safe, organized.

Write today for Literature and Prices

STAHL METAL PRODUCTS, INC.

3490 W. 140th ST., CLEVELAND 11, OHIO



Your Key
to Better
Refrigeration
Sales

COLDIN

WRITE NOW
...for the NEW 1956 Coldin
Catalogue showing the
current and complete Com-
mercial Refrigeration line.

Coldin

COLDIN CABINET CO., Inc. 2800 WEBSTER AVENUE • NEW YORK 58, N. Y.

Circle No. 75 on Reader Service Card

USEFUL

BULLETINS • BOOKLETS • CATALOGS

MODERN FLUXING PROCEDURES for low temperature silver brazing are described in a new manual, "A Complete Guide to Selective Fluxing for Low Temperature Silver Brazing", available from American Platinum Works. In addition to serving as a reference work on proper fluxing practice, the manual will also be useful as a guide to correct selection of flux based on specific temperature ranges and metals to be joined. A complete flux selector chart is included in the manual for this purpose. This is a companion manual to the company's existing manual, "A Complete Guide to Successful Silver Brazing."

Circle No. 137 on Reader Service Card

NEW APPLICATION CHART for mechanical cooling controls has just been released by Penn Controls, Inc. Designed to make selection of the correct control easier for the user, this chart lists the Penn control for each application and also the comparable control of several competitive makes.

Circle No. 138 on Reader Service Card

TUBE WORKING TOOLS for flaring, bending, cutting, and swaging are described in a new four page brochure issued by Wilson Mfg. Co. The brochure describes various construction features, and tells how the various tube working tools are used. List prices are also given.

Circle No. 139 on Reader Service Card

SUMMARIZED RECOMMENDATIONS for joining, by arc welding procedures, various tubing steels are featured on technical data card 155A offered by Babcock & Wilcox Co. In addition to indicating proper electrodes to use, information about pre-heating and postwelding heat treatments is included.

Circle No. 140 on Reader Service Card

NEW POCKET CATALOG available from W-S Fittings Div., H. K. Porter Co., Inc., contains basic information on all the division's products, including forged steel screw-end and socket-welding fittings, forged stainless and alloy steel fittings, 150 lb. stainless fittings, unions and special fittings, as well as a line of hydraulic pumps and jacks. Size ranges, types, materials of construction and design features are included.

Circle No. 141 on Reader Service Card

COMPLETE TRUCK REFRIGERATION system weighing only 410 lbs. is described in a Kold-Hold Div., Tranter Mfg., Inc., publication designated Bulletin MR-56. Illustrations in color and specifications of the over-the-road system are included.

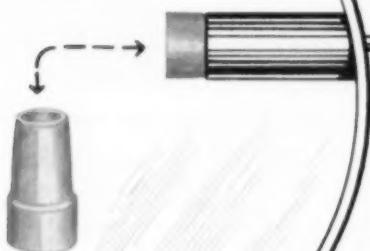
Circle No. 142 on Reader Service Card

NEW BULLETIN from Peerless Electric Co., describes its line of refrigeration duty motors and gives complete listing of voltage supply furnished by major power companies throughout the United States. This data also shows maximum horsepower ratings allowed, and starting current and special conditions noted by companies themselves.

Circle No. 143 on Reader Service Card

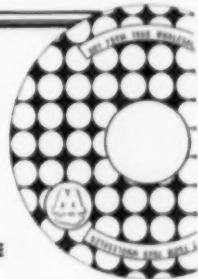
(More Useful Literature on page 86)

WOLVERINE'S NEW REFRIGERATION TUBE SEAL



Makes Your Work Easier

- **SEALS AGAINST MOISTURE AND DIRT!**
- **EASY TO USE—REMOVE IN A JIFFY—REPLACE IN A JIFFY!**
- **ELIMINATES TUBE CUTTING AND TUBE WASTE!**
- **SAME OUTSIDE DIAMETER AS THE TUBE—GIVES SURE, EASY THREADING THROUGH PARTITIONS, ETC.!**
- **CAN BE USED OVER AND OVER AGAIN—KEEPS UNUSED TUBE CLEAN AND DRY!**



Take a look at these outstanding advantages brought to you in each roll of Wolverine's Copper Refrigeration Tube. This new Wolverine end seal is designed to make your installations easier, quicker, and more economical.

In the first place, this new seal is a unique departure from standard tube sealing methods. This is a plastic plug—easy to insert—easy to remove. It gives positive protection against moisture and dirt, is easy to thread through partitions and makes useable every inch of tube that you buy. You don't waste metal by cutting off the end of the tube.

This new tube seal is an ideal companion for Wolverine Roll-O-Tube*—copper refrigeration tube in the super-thin carton that can be rolled like a hoop and used as a reel.

Next time you order refrigeration tube specify Wolverine—"reel" tubemanship by a company that knows your problems and does something about them—Wolverine Tube.

Wolverine Tube, 1405 Central Avenue, Detroit 9, Michigan.

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Here's what you need for fast,
easy, low-cost application of insulation to brick, tile, cement or metal... Gemco Metal Insulation Hangers and Tuff-Bond General Purpose Adhesive for rough surfaces...
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Circle No. 77 on Reader Service Card

86

USEFUL LITERATURE . . .

Continued from page 84

ORIGIN, HISTORY AND development of the modern multiple V-belt drive is discussed in a new 36-page pocket size booklet released by Allis-Chalmers Mfg. Co. The booklet, "Modern Multiple V-Belt Drive" (20E8297) also covers evolution standards in engineering V-belt drives, tells how to engineer a V-belt drive, provides tables and data, and describes modification in V-belt drives. Some of the basic principles and practices involved in engineering and use of multiple V-belt drives are discussed in one chapter of the booklet.

Circle No. 144 on Reader Service Card

COMPLETE LINE OF system engineered components is presented in new catalog No. 300-A issued by Acme Industries, Inc. Catalog includes complete capacity tables, dimensions and dimensional drawings for following: Model J shell and tube condensers, Model S shell and coil condensers, Model SCV (vertical) shell and coil condensers, Model HX suction line heat exchangers, Model H heat exchanger, Model R liquid receivers, Model UX and Model UXR Dry-Ex water chillers and Hi-Peak remote storage type water coolers.

Circle No. 145 on Reader Service Card

BULK MILK COOLING data is featured in the new specifications sheet published by Kupfer Products, Inc. covering the Kupfer Bulk Milk Kooler produced by this firm. Cutaway view shows details of product construction. Key features are itemized and illustrated. Complete specifications of all models are included.

Circle No. 146 on Reader Service Card

HOW TO MEASURE water vapor in air and other gases is the subject of a 12-page bulletin released by Pittsburgh Lectrodryer Corp. Discussed are gravimetric, dew point and wet and dry bulb methods as well as some less used and even experimental types. Bulletin was prepared by E. R. Queer, professor of engineering research and E. R. McLaughlin, associate professor of engineering research of State College, Pennsylvania, consultants to Lectrodryer.

Circle No. 147 on Reader Service Card

COMPACT PARTS CATALOG by Sealed Unit Parts Co. combines simple but effective illustrations with helpful tips about parts for hermetic rebuilders. A special feature of the publication offers a step-by-step operational plan for setting up an efficient cleaning system in a service shop.

Circle No. 148 on Reader Service Card

FULL CAPACITY DATA and selection information for Freon and ammonia solenoid valves, back pressure regulators, evaporator controls, and condensing water regulators for medium and large air conditioning and industrial refrigeration applications is contained in condensed form in a new catalog issued by Refrigerating Specialties Co.

Circle No. 149 on Reader Service Card

TECHNICAL WALL CHART giving pertinent physical and vapor pressure data for "Genetron" fluorinated hydrocarbon refrigerants now is available from General Chemical Div., Allied Chemical & Dye Corp. Large chart is designed as educational aid and reference source for data on four major "Genetron" refrigerants.

Circle No. 150 on Reader Service Card

(See page 122 for Air Conditioning Literature)

MAY, 1956 • COMMERCIAL REFRIGERATION

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The Industry's Most Complete Line of: REFRIGERANT HANDLING AND MEASURING EQUIPMENT

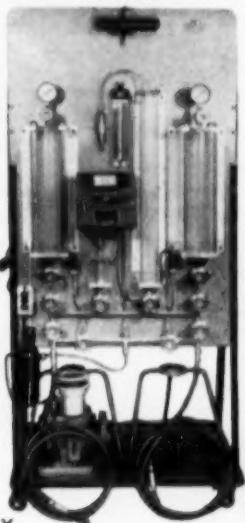
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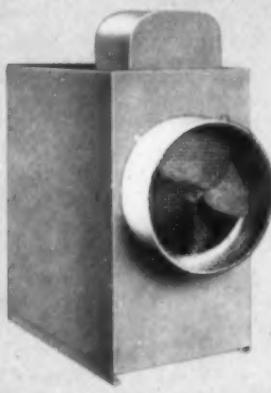
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GALVANIZED STEEL resists corrosive atmospheres—lasts longer.

REMOVABLE REDWOOD DECKING provides 25% more evaporative surface than other towers of same capacity.

QUIET FAN, 44° PITCH . . . propeller-type, V-belt driven, with pivoted motor mounting for easy adjustment of belt tension.

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Please send me complete information, including literature, on your low-cost cooling tower.

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NEW PRODUCTS

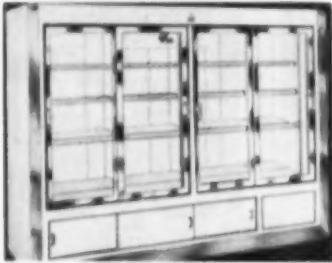
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 124)

Wall Case

Product: Model BW96-SC self-contained dairy and beverage wall case.

Manufacturer: Frigid Igloo Mfg. Corp., Yonkers, N. Y.



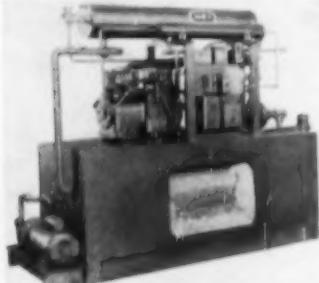
Features: Case has sliding doors for storage compartment and long sliding doors for display. Units come in 54, 72, 96, and 139" lengths. All models are 30" deep and 76" high. Designed for self-contained and remote installation.

Circle No. 171 on Reader Service Card

Package Chiller

Product: "PCS" package water chillers with storage tanks.

Manufacturer: Heat-X, Inc., Brewster, N. Y.



Features: Units can be used in supplying drinking water for schools, hospitals, theaters, and offices, and for many industrial applications. Chiller with inner-fin construction is coupled with insulated stainless steel tank and is furnished complete —

mounted, piped, and ready to install. Chiller has all copper or brass water passages, condenser, and water piping, eliminating possibility of rusty water. Units are available in air cooled models, and capacity controls can be supplied.

Circle No. 172 on Reader Service Card

Ice Cube Maker

Product: "Kold-Draft" automatic ice cube maker.

Manufacturer: Uniflow Mfg. Co., Erie, Pa.

Features: Unit makes perfect cubes and has few moving parts. Product does not employ float valves, thermostats, or timers; instead,



measured amount of water (by weight) is taken in at start of each cycle, using patented control system. Principle employed continuously washes surface of ice cubes being frozen and all minerals, solids, and air are removed. Unit rinses itself after each batch. When bin is filled, machine stops automatically and starts by itself when some ice is removed. Models available in 200 and 400 lb. sizes.

Circle No. 173 on Reader Service Card

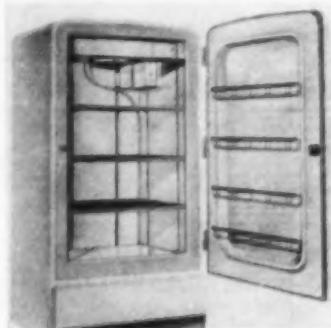
Reach-In Refrigerator

Product: Heavy duty commercial reach-in refrigerator.

Manufacturer: Victor Products Corp., Hagerstown, Md.

Features: Unit has 19 cu.ft. capacity, occupies less than 1 sq.yd. of floor space. Three adjustable steel wire shelves and four utility racks on

inside door panel. Heavily insulated for service in hot kitchens. Exterior is of high temperature baked white enamel and interior is aluminum.



Hermetically sealed unit and refrigeration system is self-defrosting and permits trouble-free, plug-in operation. Besides hotel and restaurant kitchen use, unit is ideal for cooling beverages in bars, taverns, and retail liquor stores.

Circle No. 174 on Reader Service Card

Gasket Cutters

Product: "Hargrave" No. 414 handy gasket cutter (shown) and No. 415 extension gasket cutter.

Manufacturer: Cincinnati Tool Co., Cincinnati, Ohio.

Features: No. 414 cutter has lightweight phenolic body with steel blades, both inch and metric scales. Cuts round gaskets $\frac{1}{4}$ to 6", odd shapes, and straight pieces any size. Ideal to cut diaphragms, disks, gaskets, patterns, shims from any pliable sheet material. No. 415 tool has



aluminum body with steel blades, inch and metric scales—cuts precision round gaskets of any size. Sturdy extension arms increase diameter to any size. Holes in gaskets can be speedily cut to precision in any type of pliable sheet material. Circle No. 175 on Reader Service Card

Refrigerated Stand

Product: Model RES-41 refrigerated equipment stand.

Manufacturer: Dunhill Soda Fountain Corp., Brooklyn, N. Y.

Features: Unit is equipped with one blower-type refrigeration coil for

GIVE WATER WORRIES

"THE AIR"

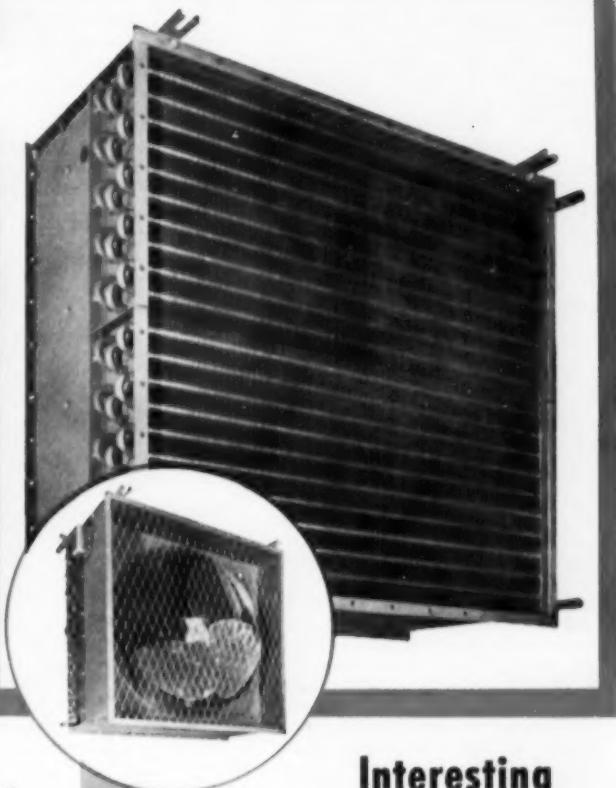
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LARKIN
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HANDLES UP TO 40 TONS
AS EASY AS A BREEZE

Here's an engineering achievement that solves several of your problems in one neat package:

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- 2) *The Larkin Zephyrcon pulls the air over the condensing coils.* This distributes the air better, holds air-stream noise to a minimum, makes removal of lint and leaves simple.
- 3) *The Larkin Zephyrcon operates quietly and efficiently.* It is engineered with sufficient condensing capacity to solve your problem. Low speed motors and deep pitch fans assure quiet operation.

Add to these advantages the reliability of any product bearing the name Larkin, and you have a combination hard to surpass. For full details, see your wholesaler, or write direct to us.



Interesting

Facts and Features:

- 2, 3, 5, 8 and 10 ton units engineered for parallel use.
- Famous Larkin cross-fin coil—aluminum fins, copper tubes.
- Finished with corrosion-resistant open-base, chlorinated-rubber enamel.
- Permanently lubricated motors operate quietly on resilient adjustable base. Motors are provided with overload protection.
- Motor wired to weather-proof external conduit box.
- Fan guard is standard equipment.
- Zephyrcon is weatherproofed for indoor or outdoor operation.
- Slotted hanger bars for ceiling or floor installation.
- Pre-punched holes for easy connection to duct-work.



LARKIN

COILS
INC.

519 Memorial Drive, S.E. • ATLANTA, GA. • MURRAY 8-3171

Circle No. 80 on Reader Service Card

peak use. Two refrigerated drawers are of all stainless steel, mounted on roller bearing slides with positive lock on front insulated panel. Automatic lights go on and off with movement of door. Heavily tinned wire shelves on interior are easily removable for cleaning. Adjustable legs



and stainless steel kick plate also are provided. Body is of 16-gauge zinc-coated steel, with all sides and bottom heavily reinforced with steel structural members. Front facing is stainless steel. All joints are electric welded. Complete interior and exterior back, ends, and bottom panels are sprayed with thick coating of synthetic aluminum. Superstructure's exposed surface and capping are all of 20-gauge stainless steel, with 2" of pure vegetable corkboard insulation.

tion used throughout. Working height of stand is 36"; overall height is 72", depth 24", and length 4'10". Circle No. 176 on Reader Service Card

Thread Sealant

Product: "Rectorseal No. 2" thread sealing compound in tube packaged in cylindrical screw top container.



Manufacturer: Rectorseal Div. of Rector Well Equipment Co., Houston, Tex.

Features: Container protects collapsible tube while in transit, truck,

or tool box. Nozzle tip applicator on tube makes for faster, smoother, more economical spreading. No. 2 compound formula is insoluble in water, all petroleum fractions, LP gas, natural or manufactured gas, refrigerants, anhydrous ammonia, Freon, and sulphur dioxide. After application sealant is transformed to thick plastic elasticity in threads. Manufacturer claims product never hardens, crumbles, or cracks.

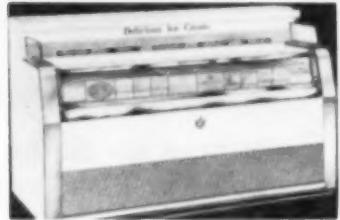
Circle No. 177 on Reader Service Card

Automatic Defrost Case

Product: Model GFS-99 and GFS-122 automatic defrost ice cream cabinet.

Manufacturer: Schaefer, Inc., Minneapolis, Minn.

Features: Model GFS-99 has 9.9



cu.ft. capacity, and accommodates 504 pint ice cream packages. Model GFS-122 has 12.2 cu.ft. capacity, and

NOW...INTRODUCING NEW UNIFLOW ALL-ALUMINUM WALK-IN COOLERS and WALK-IN FREEZERS



UNIFLOW FEATURES

- ★ Heavy gauge tempered aluminum—inside and out.
- ★ Semi-rigid fiberglass sealed to lining. Highest insulating value.
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- ★ Concealed door hinges.
- ★ Standard size sections may be added any time.
- ★ Tie-rod construction throughout; no cover plates to mar interior beauty.

Write for full information on the most complete line of walk-in coolers/freezers in the industry. We will be pleased to send you our Dealer "Extra Profits" Brochure. Address your request to THOMAS A. MARTIN, Sales Manager.

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MAY, 1956 • COMMERCIAL REFRIGERATION

accommodates 672 pint packages. Both units have copper tubing attached continuously to four sides and bottom of evaporator tank, and are equipped with free-air-flow condenser. On under side of low type, fluorescent lighted structure is defrost coil that keeps blanket of cold air over product at all times. Defrosting is automatic and on short cycle. Both models have 12" top opening and new fold-down night cover.

Circle No. 178 on Reader Service Card

Ice Cream Freezer

Product: Double unit ice cream freezer which dispenses two flavors simultaneously.



Manufacturer: Freez-King, Inc., Chicago, Ill.

Features: Stainless steel freezer is 31" wide, 33" deep, and 62" high. Dispensing units operate independently of each other to dispense chocolate and vanilla—the two most popular flavors—from the unit at the same time.

Circle No. 179 on Reader Service Card

Refrigerated Sandwich Unit

Product: 4' refrigerated combination sandwich unit.

Manufacturer: S. & R. Soda Fountain Mfg. Co., New York, N. Y.

Features: Available in several standard sizes or made to order, unit contains 10 covered pans, toaster stand with electric outlets; 2 stainless steel bread drawers on roller bearings; cutting board with removable refuse drawer; and adjustable legs.

Circle No. 180 on Reader Service Card

Pipe Joint Cement

Product: "Stay-Tite" pipe joint cement that provides lubrication and permanent seal against leaks.

Manufacturer: J. A. Sexauer

Mfg. Co., Inc., New York, N. Y.

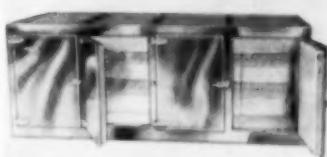
Features: Manufacturer claims product won't harden in can, that sealing qualities are retained indefinitely, and that cement remains in plastic state after being applied so fittings can be easily removed at any time without breakage. Other qualities: prevents friction when joint is made up; compensates for tool marks, imperfect threads, or other surface irregularities; protects threads from rusting; flows on smoothly and evenly. Equally effective on high or low pressure piping, cement can be used for hot or cold water, steam, air, oil, gasoline, etc.

Circle No. 181 on Reader Service Card

Back Bar Unit

Product: Back bar refrigeration unit.

Manufacturer: La Crosse Cool-



er Co., La Crosse, Wis.

Features: Easily adaptable to most bar arrangements, model is 22" deep from front to back. Rec-

Time saving, money making

GASKET PRODUCTS

"RE-SEAL" CUSHION REPLACEMENT GASKET

No. 7110 (Black)—No. 7111 (White)

The all purpose cushion gasket, designed to replace worn-out cushion section of gaskets having a web, flange or breaker strip.

DOUBLE-SEAL GASKET

"Dead air" space between double ridges protect against refrigeration loss. Extra heavy neoprene over sponge rubber cushion, 1-3/8" wide, 1/2" high.



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AIR CONDITIONING WINDOW SEAL GASKET



Made of JARENE-B vinyl plastic. Won't chip, harbor or crack. Weather-resistant. Fits most window units.

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VINYL DOOR SILL WIPER STRIP

Prevents refrigeration loss at bottom of overlap or standard infitting cooler doors. Made of flexible JARENE-B vinyl plastic 1-1/2" wide.



No. P-691



JARENE CEMENT

Perfect for bonding all types of rubber door gaskets to metal, wood or painted surfaces. Withstands most severe pull tests. Easy to apply.

Available in half-pint or full pint jars. Not recommended for plastic or Condenseal.

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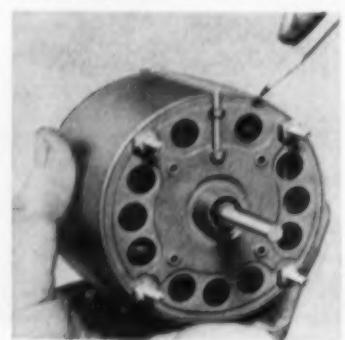
Circle No. 82 on Reader Service Card

ommended for keg pre-cooling and refuse refrigeration. In three or four door size, models have stainless steel fronts and ends but no top panel. Stainless steel top is available at extra cost. Product has adjustable shelving in all compartments. Available with blower coil only, or complete with condensing unit.

Circle No. 182 on Reader Service Card

Electric Motor

Product: Compact and light weight Type AL-4 fractional horse-



power electric motor.

Manufacturer: Redmond Co., Inc., Owosso, Mich.

Features: Registers are held concentric with each other and to bore to extremely close tolerances by machining both stator core registers simultaneously. End frames set into machined registers provide both positive bearing alignment and uniform air gap to make motor run quietly. Motor shorts and grounds are eliminated through use of thermosetting phenolic end turn insulators. Case-hardened studs prevent threads from stripping. Oil wicks are made of spun nylon which increases capacity and retention, and gives more uniform oil distribution. Unit is of 4-pole design, 1550 rpm, 115 or 230 volts, 60 cycles. Also available in odd voltages and frequencies or in either open ventilated or enclosed construction. It develops 1/250th to 1/15th hp. There are 14 lead outlets.

Circle No. 183 on Reader Service Card

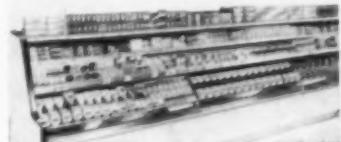
Adjustable Dairy Case

Product: Adjustable-shelf dairy case that resembles regular wall shelving.

Manufacturer: McCray Refrigerator Co., Inc., Kendallville, Ind.

Features: Built in 8 and 11' lengths, models have three refrigerated shelves. Lower shelf has low reach-in height (2 1/2") and upper shelves have no front glass, reducing

shopping interference and making product identification easier. Shelf sections are individually adjustable in height to fit most product loads.



Total refrigerated capacity in 8' case is 45.78 cu.ft. and 61.08 cu.ft. in 11' case. Milk carton capacity (triple decked) in 8' case is 773 quarts and 1035 quarts in 11' case.

Circle No. 184 on Reader Service Card

Porcelain Repair Kits

Product: Baked-on type double-duty porcelain patching material developed for repair of chips on all appliances.

Manufacturer: Reimuller Co., Glendora, Calif.

Features: Manufacturer claims product will resist most acids, boiling water or oil, and will withstand heat without fading or losing strength. Tensile strength is 25,000 psi. Available in 2 types of kits, and 1 and 5-gallon containers or barrels. Service kit contains white and blu-

REMOVE CONDENSATE WATER FROM AIR CONDITIONING SYSTEMS

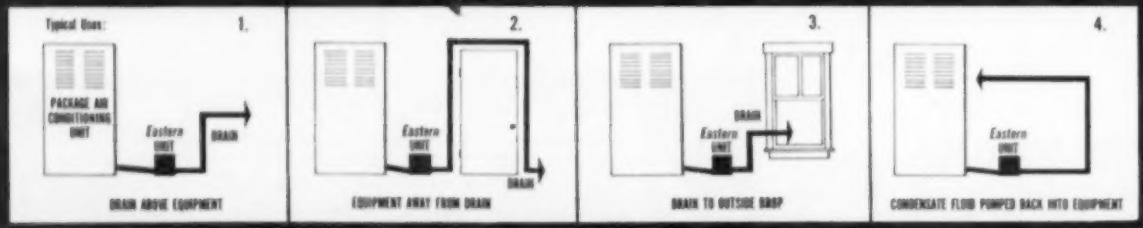


A completely automatic, foolproof unit designed to remove hot or cold condensate fluids from the receiver tank and pump it to an outside drain. Simple to install with air conditioning equipment, it gives quiet and reliable performance.

Eastern Model 3, Type 100:

Tank capacity 0.8 gallon. Centrifugal pump delivery approximately 4 1/2 GPM at 0 P.S.I. and shut off at 12 1/2 P.S.I. Motor 1/40 H.P., 115 volt. Weight 23 pounds. Mercury control switch. Size 5 1/2 inches wide, 10 inches long, 11 1/4 inches high.

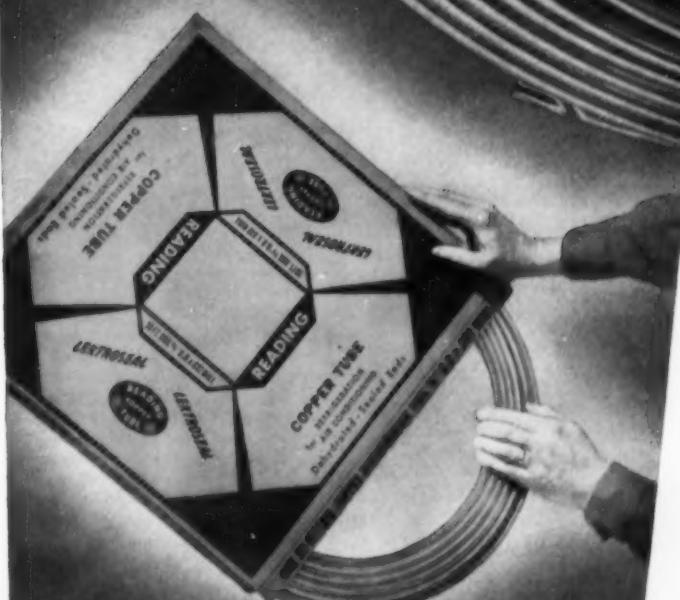
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READING "LEKTROSEAL" COPPER REFRIGERATION TUBE



**FIRST STEP
in a Quality
Installation—**

Soft temper for easier forming . . . dehydrated — with crimped ends to seal out all moisture and dirt . . . and keep the inside surface absolutely clean. Comes in handy 50-foot coil packed in its own convenient protective carton, clearly labeled for easy identification. To be sure of the job — be sure to specify Reading.



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Maximum safety assured, FINE Cylinders offer your cheapest insurance against explosion danger! Their extra capacity decreases high pressure due to hydrostatic expansion. Heavier metal walls, thicker at ends. Broad base prevents tipping, offers extra valve protection. Forged brass valves with fusible safety. (Spring loaded safety, slightly extra.) Cylinders hammered gray finish. Caps included (except 5E). Sizes: 5E, 10L, 25L, 35L.

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HANDY-TOTE CAP

Provides an extra hand for the busy service men to carry tools, tubing and parts. Saves trips to service truck. Standard cylinder thread. Quickly transfers from one cylinder to another. Built to last.

REDIFLEX CHARGING HOSE TYPE D

Truly flexible, full 36" length, with leakproof Rapid Couplers and forged brass, 1-piece, 45° E-Z FLOW L-BO. Two-ply construction; heavy inner gas-tite Neoprene Core. Non-kinking, tight weave, very flexible, luster coated cover. Knurled nuts for finger-tip tightening.

ASK YOUR WHOLESALER

**Write for new Catalog
No. 456**

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Circle No. 85 on Reader Service Card

white porcelain powders, and containers of binder material and baking agent, sufficient for repairing 50 to 200 surface chips. Commercial kit has three times as much white and blu-white powders, plus set of colors for matching of all colored surfaces. Sufficient for repairing 150 to 600 surface chips.

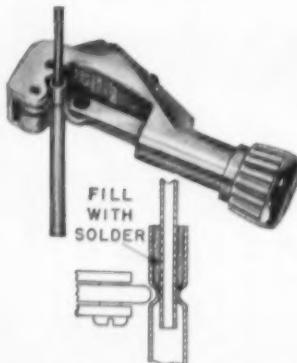
Circle No. 185 on Reader Service Card

cutting tubing or for constricting larger tube to outside diameter of smaller one, preparatory to making solder connection. Unit is used with its standard cutting wheel for cutting tubing. Second wheel with rounded contour is carried in special recess under reamer. Wheel is used in place of cutting wheel for constricting tubing.

Circle No. 186 on Reader Service Card

Tubing Tool

Product: Combination tube cutter and tube constrictor.



Manufacturer: Imperial Brass Mfg. Co., Chicago, Ill.

Features: Tool can be used for

RECTORSEAL No. 2

costs

20% to 40% less...**gives more****leak protection**

No compound compares with Rectorseal No. 2 for sealing quality and price. Insoluble in all refrigerant gases, it provides positive sealing on all thread connections of refrigeration installations. It actually costs 20% to 40% less than other sealants. No other compound is so economical to use.

Rectorseal No. 2 comes in an easy-to-use tube with a nozzle tip applicator. Each tube is individually packed in a sturdy cylindrical screw top fiberboard carton that protects the tube against damage in truck or tool box.

Write today for a generous free sample of Rectorseal No. 2.

RECTORSEAL Dept. Y

2215 Commerce Street, Houston 2, Texas

RECTORSEAL

NUMBER TWO

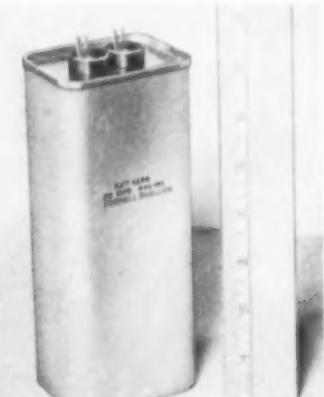
Circle No. 86 on Reader Service Card

Motor Capacitor

Product: KNT and KXT high-capacity a.c. motor capacitors.

Manufacturer: Cornell-Dubilier Electric Corp., South Plainfield, N.J.

Features: Type KNT is encased in deep-drawn, no-seam, solderless terne plate container with base dimensions 4-9/16" x 2-7/8". Type



KXT comes in slim, extra-deep-drawn, no-seam terne plate case with base dimensions 2-3/16" x 2-1/8" and case heights up to 7-3/8" maximum. Both models are ideal for motor-running applications in split-phase motor circuits such as in air conditioning and refrigeration equipment, voltage regulators, and fan motors. One-piece, deep-drawn case and cover construction eliminate all possibility of impregnant leakage, providing strong hermetic seal. Terminal structure of units is leak-proof and compression-sealed, with phenolic cup insulators and fork-lug terminals. Single or double blade quick-connect terminals also are available for instantaneous connection of capacitors without soldering.

Circle No. 187 on Reader Service Card

Basement Beer Tap

Product: Direct-draw beer tap for basement connection.

Manufacturer: Nor-Lake, Inc., Hudson, Wis.

Features: Unit is air-cooled and requires no coils or water bath. It is recommended for taverns and res-

taurants. Each model is complete unit with all required tapping equipment. Faucets, taps, tap rods, beer lines, air distributor, air circulating fan, and necessary air hose is included. Temperatures are maintained by 150 cfm blower. Tap boxes are available in two widths, 24" or 30". The 24" model comes equipped with either two or three faucets, and the 30" model is available with two, three, or four faucets. Four feet of air ducts and insulation to walk-in cooler are included.

Circle No. 188 on Reader Service Card

Vacuum Pump

Product: Redesigned vacuum pump.

Manufacturer: Leiman Bros., Inc., Newark, N. J.



Features: Company claims redesign has accomplished reduction

of 33% in overall height and increase in vacuum to as low as .4 mm mercury absolute. Capacity of units range from 2.4 to 40 cu. ft. per minute. Company says improvements were gained by newly designed more efficient automatic oiling system, placed under pump, instead of on top of pump as with old system. When used for pressure, pumps provide range of 15 to 20 psig, company claims.

Circle No. 189 on Reader Service Card

F and working pressures to 300 psig. It can be supplied at any practical length with level eyes spaced as close as every 2". Unit is furnished with shut-off valves and $\frac{1}{2}$ " ball check valves.

Circle No. 190 on Reader Service Card

Space Cooler

Product: Floor type space cooler unit.

Manufacturer: Industrial Mfg. & Engineering Co., Chicago, Ill.



Gauge Column

Product: Low temperature unit includes series of "Level Eyes" which will not frost over or become fouled by oil or dirt.



Manufacturer: H. A. Phillips & Co., Chicago, Ill.

Features: Liquid behind bullseyes appears black: absence of liquid leaves glass clear. Boiling liquid does not affect reading. Transparent plastic "frost shield" may be inserted over level eye for very low temperature use. Column is suitable for use between 50 F and 250

Features: Unit consists of finned type cooling coil, galvanized sheet steel housing, fan, motor and drive, and, where required, surge drum with float valve. Can be used for holding, chilling, and freezing food

**Get out
of the
icebox
and make
extra profits!**



You can make more money in every food store you contact by selling Hirsh Showline shelving in addition to refrigeration equipment and service. Showline is a natural for extra profit sales in both new and established stores. It comes complete — there's nothing more to buy or paint — and can be installed quickly, without special tools. Whether it's installed by you or by your customers (it's that easy to put up) you'll make extra profits with a minimum of effort.

Don't freeze your sales and profits by confining yourself to refrigeration lines alone. Get your share of the money spent for equipping the rest of the store! Mail the coupon today for the full Showline profit story.



CR-5

S. A. HIRSH Manufacturing Co.
6051 CENTRAL PARK AVENUE—SKOKIE, ILLINOIS

Gentlemen: Please send me literature, prices, and jobber discount information on Hirsh Showline Shelving.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Circle No. 87 on Reader Service Card

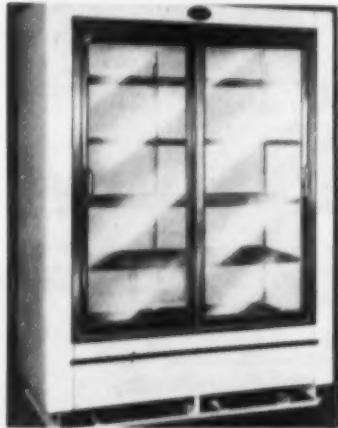
products. Cooler comes in eight sizes from 2210 to 14,760 Btu per degree t.d. and from 3610 to 19,660 cfm. Water defrost arrangement optional. Also can be arranged for thermal valve feed or brine circulation. Coil is made of 1" o.d. condenser tubing with plate fins, hot dip galvanized after fabrication. Available in three, four, and six fins per inch to fit various suction temperatures. Unit's casting consists of pan, coil, and fan sections. Air inlet, access doors and piping connections may be changed readily.

Circle No. 191 on Reader Service Card

Refrigerated Wall Case

Product: Certified Air model CAC-40 refrigerated dairy and beverage wall case.

National Distributor: Frank Dewey Co., Detroit, Mich.



Features: Self-contained case has automatic door closing device that pulls stainless steel sliding doors shut at same rate, no matter how far they are opened. Strong cable hooks onto door and at other end spring tension and one-piece graduated-circumference pulley slide doors shut automatically. Tension is constant and can be adjusted easily. Full-length doors ride on steel ball rollers. Entire door assembly can be removed. Full-wire-rack shelving, in 8 adjustable sections, permits uninterrupted air circulation inside case. Unit provides 41 cu.ft. of refrigerated storage and display space, cooled by ½-hp condensing unit. Available with either Coplametic or Kelvinator condensing unit. Steel case is 78" high, 54" wide, and 30" deep.

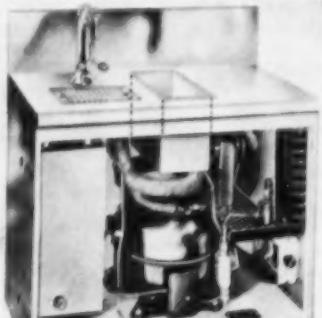
Circle No. 192 on Reader Service Card

Under-Counter Coolers

Product: Self-contained and remote under-the-counter water cooler models.

Manufacturer: Lern, Inc., Chicago, Ill.

Features: Model U-100-SC plugs into any A.C. outlet. Top and front are highly polished stainless steel



with sanitary chrome plated adjustable glass filler. Thermostatically controlled. Model U-105-SC is same except that it contains an insulated chipped ice compartment. All units are compact and engineered to fit under counters as low as 32" high.

Circle No. 193 on Reader Service Card

F to plus 140 F, enabling it to operate efficiently in both extreme cold and warm locations. Unit will operate in any position, simplifying installation problems. It is said to be suited to use either inside cold freezer compartments or in warm compressor rooms. Being sealed, it is not affected by humidity and moisture from outside air, which would affect proper switch operation. Available on Tork "Switchmaster" time switches.

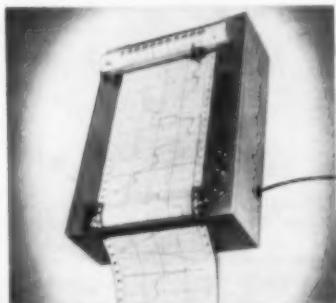
Circle No. 195 on Reader Service Card

Strip Chart Recorder

Product: Portable strip chart recorder which operates on self-balancing potentiometer principle.

Manufacturer: C. H. Stoelting Co., Chicago, Ill.

Features: With appropriate sens-



Pipe Insulation

Product: "Easy-Wrap" combines under-wrap quality glass fibre insulating material and outer-wrap vapor sealing tape.

Manufacturer: Rhopac, Inc., Skokie, Ill.

Features: Prevents condensation and sweating of cold water pipes. On hot water pipes, prevents cooling of water in pipes and consequent heat waste. Protects against freezing when pipes are exposed to low tem-



peratures. Material is packaged in compact carton which contains 25' of 3" wide glass fibre insulation and 25' of 2" wide vapor sealing tape.

Circle No. 194 on Reader Service Card

ing devices, unit will record temperature, speed, light, pressures, resistance, motion or any variable that can be represented by d.c. millivolt signal within its range. Design features rectilinear tracings, 100 millivolt full scale, high input impedance, sufficient reproducibility, high stability, 1% accuracy, vertical or horizontal ink writing, high torque, servo-motor, 5" pen travel, synchronous motor paper feed, sprocket driven chart, and table or wall mounting. Size is 6" high x 9½" wide x 14" long. Weight is 15 lbs.

Circle No. 196 on Reader Service Card

Vibration Hangars

Product: "Finnflex" types S and SC high deflection, heavy duty vibration hangars for use with suspended equipment.

Manufacturer: T. R. Finn & Co., Hawthorne, N. J.

Features: Units consist of a helical steel spring enclosed in a steel housing. Springs are manufactured of carbon-steel wire with cadmium plating to prevent corrosion. They are claimed to withstand high temperatures without creep or permanent set, and low temperatures without increase in stiffness. The top bearing plate is capped with a rub-

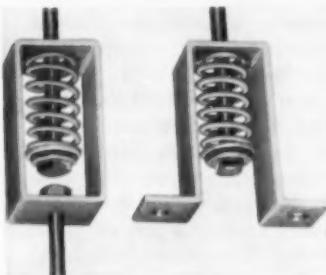
Time Switch Motor

Product: Heavy-duty time switch motor.

Manufacturer: Tork Clock Co., Inc., Mount Vernon, N. Y.

Features: New "Type F" heavy duty motors are applicable to commercial refrigeration defrosting as well as to a number of other uses. Motor has temperature range of -40

ber isolation washer to minimize noise transmission. Both types are intended for use where large deflections are required due to thermal ex-



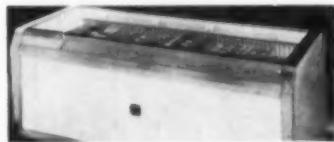
pansion of pipe lines, where high and low temperatures are involved, and where very low disturbing frequencies are encountered. Rated load capacities range from 50 to 1000 lbs.

Circle No. 197 on Reader Service Card

Frozen Food Case

Product: OE8RL, "Openview" ice cream island refrigerator.

Manufacturer: Friedrich Refrigerators, Inc., San Antonio, Tex.



Features: Reverse cycle 8-minute defrost does not allow ice cream to melt and refreeze and thus eliminates spoilage loss. Case is finished in white acid-resistant porcelain with polished stainless steel trim.

Circle No. 198 on Reader Service Card

Hand Truck

Product: "E-Z Climber" stair climbing truck.

Manufacturer: Precision Equipment Co., Chicago, Ill.

Features: Two rocker-arms act like extra pair of wheels, and keep truck on constant line for friction-free travel. Doorway and aisle limitations do not lessen maneuverability of unit. Product has 1" o.d. tubular steel frame, electrically welded for utmost rigidity, with curved cross members. W nose-plate is 9 x 14", of heavy 3/16" steel. Truck has reinforced base plate beam. Semi-pneumatic, 10" x 2.75", steel disc wheels are ideal even on rough surfaces. Load capacity is 600 lbs. Overall size is 46" high x 18 $\frac{3}{4}$ " wide.

Circle No. 199 on Reader Service Card

& AIR CONDITIONING • MAY, 1956

HAND-ASPIRATED PSYCHROMETER FOR ACCURATE TEMPERATURE/HUMIDITY MEASUREMENT



YOU CAN DO
A BETTER JOB
SELLING, INSTALLING
AND SERVICING WITH THIS
Bendix-Friez INSTRUMENT

Compact and easy to read, this Bendix-Friez® Hand-Aspirated Psychrometer provides a very simple means of obtaining quick, accurate temperature and humidity measurements. It requires no whirling or special techniques. Particularly adapted for measurements in close, confined spaces without the usual risk of thermometer breakage, it is extremely popular among air-conditioning and heating engineers.

Model HA/2 has two identical red-reading mercurial thermometers. Graduations on each thermometer are in 1° spacing from 10°F. to 110°F. One bulb is covered with a special wicking to act as a wet bulb. The unique design of the instrument permits it to be held stationary during operation and for observing decreasing wet bulb temperature. Thus the *minimum* wet bulb temperature can be read for maximum accuracy.

The Bendix-Friez HA/2 Psychrometer comes complete with built-in pocket-size plastic carrying case, water bottle, applicator, spare wicks plus a Bendix-Friez Psychrometric Slide Rule.

Other models in 3 different ranges are available.
Write for complete information. Address below.



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Export Sales and Service: Bendix International Division, 205 E. 42nd Street, New York 17, N.Y., U.S.A.

Circle No. 88 on Reader Service Card

5000 CONTRACTS . . .

Continued from page 72

respondingly it also is the most expensive.

"For those customers who for one reason or another don't need or want the standard maintenance contract, however, we will tailor this basic agreement in any way that is feasible to suit their specific requirements. Some customers may want only a policy that covers

emergency service during the year, without any periodic maintenance checks. Others may want it to cover materials as well as service. In every case we try to work out an agreement that will both satisfy the customer and provide us with the margin of profit we require."

Complete terms of the standard contract agreement are imprinted on the center two pages of a special 4-page folder. A point-by-point schedule of inspection and maintenance checks for both air

conditioning and refrigerating equipment fills the left-hand page, while other provisions of the agreement, plus space for signatures to make the contract binding, are included on the right-hand page.

Under a special "All Year Protection Service" letterhead on the front page of this folder the equipment to be covered is itemized, and any exceptions to the standard contract terms are clearly stated. If necessary, this information can carry over onto the final page of the folder, which is left blank for that purpose.

All active contract accounts are filed alphabetically in the service department. The particular type of policy is clearly designated on each card. When a service call

READY FOR THE TEST?

You're ready for *any* test if you have these Marsh "Serviceman" instruments. They all share in those commendable Marsh family traits — precision, ruggedness, honest quality, remarkable value. Notice the new models . . . and the new "Serviceman" Timer! Remember:

Your jobber stocks them

Serviceman

TESTING THERMOMETER

Handsome new model of standard, distant-reading testing thermometer. Tests to 40 below. Tube is now made permanently leak tight by Marsh "Conoweld" process. Recalibrator now in back of case for easy access.

Serviceman

DELUXE 3-SCALE

Like the standard model above, but has two added, color-differentiated scales showing corresponding pressures of Freon 12 and Freon 22. A beautiful instrument; a real time saver.

Serviceman

TIMER

Useful new arrival in "Serviceman" family shows total running time and total elapsed time of refrigerating unit on 24-hour dial. Easier to use and read than expensive recorder; costs far less. Two models cover all conditions.

Serviceman

MARSH INSTRUMENT CO.

Sales affiliate of Jas. P. Marsh Corporation
Dept. P. Shoklo, III • Marsh Inst. & Valve Co. (Can.) Ltd.
8407 103rd Street, Edmonton, Alberta, Canada

Serviceman

TESTING GAUGE SET

Great team of extremely accurate testing gauges in handsome polished brass cases with beveled glass crystals. Rings readily unscrewed for quick access to recalibrator. Note retard scale on compound gauge for close reading in important testing range.

Serviceman

4-SCALE TESTING GAUGE

Three extra color-differentiated scales in this accurate testing gauge show temperature corresponding to pressure for sulphur dioxide, methyl chloride and Freon. Ranges for all needs.

Serviceman

POCKET THERMOMETER

Highly accurate; easy to read; equipped with swivel to hang in refrigerator or clip in your pocket.

MARSH
Refrigeration Instruments

Circle No. 89 on Reader Service Card



"What's this supposed to be — a service call or a treasure hunt?"

comes in, the dispatcher first checks the customer's card, then fills out a work order which is routed to one of the company's 24 regular year-round servicemen. Upon completion of the call, the serviceman fills out the balance of the work order. This completed work order ultimately is filed permanently in that customer's folder.

If a customer calls for service and the dispatcher does not find the card on file, he immediately checks with the front office. Cards are removed from the dispatcher's file whenever there is any reason for question, such as nonpayment of the policy premium, request for C.O.D. service, or special instructions for entering the premises

where the equipment is located. All such notations are made directly on the cards, and these cards are kept in the front office because Johnson doesn't want to harass the dispatcher with special considerations and decisions which might impede his speed and efficiency.

Periodically Johnson goes through his service files and determines which customers may be prospects for new equipment. Meanwhile servicemen are kept continually on the alert for new equipment prospects, and are instructed to make any such notations on their completed service orders. At regular weekly meetings the men are reminded that careful attention to these merchandising opportunities means not only increased incomes for them but also a healthy volume of business for the firm, which in turn ensures their steady employment.

COPELAND OUTLINES EXPANSION PLANS

Copeland Refrigeration Corp. has planned an expansion program designed to add nearly 500,000 sq. ft. of manufacturing and administrative space to its present facilities. New facilities will be constructed on a 75-acre site.

First unit to be constructed is a 250,000 square-foot plant for refrigeration and air conditioning compressor manufacturing, engineering research and product development.

The company plans to maintain some of its present Sidney facilities for some manufacturing, sub-assembly, and material storage operations.

YORK AWARDED LARGE ROBERT HALL CONTRACT

The commercial division of York Corp. has been awarded a large contract by Robert Hall Clothes, Inc. for the installation of air conditioning in 107 of their stores located in major cities from Boston, Mass. to Milwaukee, Wis. The sale, believed to be the largest of its kind, calls for the installation of two 7½ hp air conditioners and a cooling tower in each store.

GET OUT OF TOWN . . .

Continued from page 77

simply left out in the open in a back lot until any usable parts could be salvaged.

As even display, storage, and management operations were crowded in the headquarters building, it was necessary to locate the firm's service facilities in the warehouse, along with the stockroom for parts and supplies. This further complicated the company's operating pattern.

No Parking Space

No parking facilities were available at the headquarters building, and there were no adequate loading or unloading facilities at either the main building or the warehouse. As a result, delivery trucks were continually blocking the street during these operations.

Hemmed in and handicapped by these physical restrictions, the company's management soon realized that if the firm were to experience the growth anticipated new quarters would have to be found. In looking around, they quickly determined that a location somewhere outside the business district would provide the only logical solution to their requirements.

Plenty of Traffic

Consequently, in 1948 they settled upon their present location on a main highway just north of the city. They bought the property that year, but it was not until 1951 that they finally were able to move into the completed building which had been designed and constructed to best suit the needs of their particular business.

The property on which the Baker-Ward building is located measures 120 x 276'. The one-story building itself measures 60 x 105', of which an area 40 x 105' is devoted to equipment display.

The building is located on a six-lane highway on which traffic counts have shown as high as 600 cars per hour passing this point. Despite the fact that the building faces west, and so is exposed to an extremely heavy sun load through its virtually solid front of

display windows, the company deliberately has refrained from shading these windows with any kind of awning, blind, or sun screen.

The combination of heavy traffic and unobstructed display windows, the management feels, provides an excellent advertising medium, and as a result there probably are few people in the South Bend area who aren't at least aware of the type of products that Baker-Ward sells.

"A downtown location is fine for many types of businesses," Baker observes, "but not for ours. Here in our building in this out-of-town spot we have managed to eliminate most of the handicaps under which we previously labored. With all of our activities housed under one roof we can operate much more efficiently, we have sufficient space to satisfy the requirements of every department, and—perhaps equally important—we still have plenty of room for expansion when and if the need arises."

TRANE TO EXPAND PLANT

The Trane Co. has taken bids for construction of a 24,000-sq.ft., one-story-above-grade addition to its compressor Plant 6. The company reports that its 1955 reciprocating compressor sales were the highest it ever recorded. A new boiler house also is included in the plans.

GEN. CHEM. RELEASES EDUCATIONAL FILM

General Chemical Div., Allied Chemical & Dye Corp., has released a 35-minute, full-color, sound-slide film entitled "Moisture". One of a series of educational films being prepared for presentation at Refrigeration Service Engineers Society chapter meetings, it also is available to refrigeration wholesalers, equipment manufacturers, and technical schools and colleges on a loan or permanent basis depending on extent of usage.

The corporation also will arrange showings for organizations which do not have their own 35mm sound-slide projection equipment.

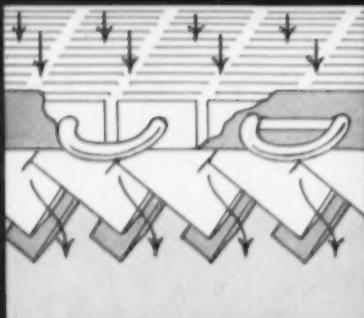
ANOTHER "BEST BUY" BY PEERLESS FLASH COOLER

A DeLuxe Coil and Pan Combination to Maintain High Humidity
In All Walk-in Refrigerators
Above the Freezer Range



For All
Refrigerants

Better Refrigeration and Better Humidity Control



In a Flash Cooler you are guaranteed better air circulation and better humidity control because of the spacing between each tube course. Full open drip pans also include secondary drip troughs. Defrosting is complete on shut down cycle.

When nation-wide chain stores standardize on Flash Coolers, it is due not only to first cost but also to savings made every day they are in use. When refrigeration contractors consistently recommend fine Peerless products, it reflects their own good judgement in assuring greater customer satisfaction.

For walk-in refrigerators, the Flash Cooler is a recognized "better buy."

It requires less head room—consequently more space is available for storage. Slow moving air completely blankets cooler and contents and eliminates drying. In each shut down cycle the Flash Cooler is completely defrosted. Beautifully finished, it commands attention as a deluxe job always .

Many other sales points are described in the new Peerless catalog. Write for your copy. It will help you sell more profitable jobs.

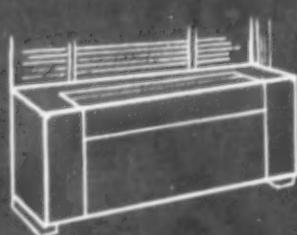
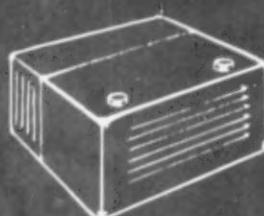
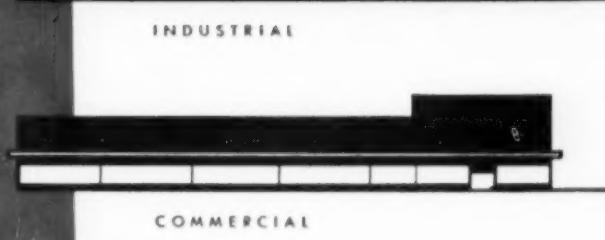
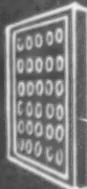
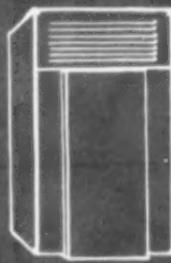
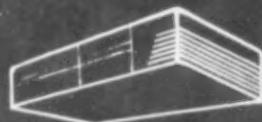
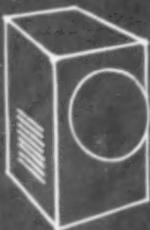


PEERLESS OF AMERICA, INC.
MANUFACTURERS OF REFRIGERATION AND AIR CONDITIONING COILS SINCE 1912
DEPT. C, 5800 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS, U.S.A.

Circle No. 90 on Reader Service Card

Air Conditioning Section

COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



READER'S GUIDE

TWO LESSONS IN RESIDENTIAL AIR CONDITIONING:

What's In It For You	103
How To Build a Profitable Merchandising Program	106
Home Air Conditioning Better Family Living	109
One House — Two Systems	110
Through-the-Wall Installations	113
Where There's an "Evap" There's a Prospect	114
Atomic Air Conditioning	115
Proper Testing of Air Conditioning Installations	118
Useful Air Conditioning Literature	122
What's New In Air Conditioning Equipment	124

**Why not sell and
install the Packaged
Air Conditioner that's
built and backed by a
company with over 75
years' experience in
the manufacture of
air handling and
conditioning equipment
for every business**

Sizes: 3 to 20 tons. See your American Blower Distributor or call our nearest Branch Office.

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BLOWER

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Circle No. 91 on Reader Service Card

RESIDENTIAL AIR CONDITIONING

LESSON #1

What's In It For YOU

TEACHER: R.C. HUGHES



BOB HUGHES is a salesman. His present position is manager of sales training for the air conditioning and refrigeration division of Worthington Corp. Prior to joining Worthington in 1953 as national distributor supervisor, he had served as sales manager of one of York Corp.'s largest distributors. He well knows, however, that selling to homeowners is a lot different than selling to businessmen, for he's had his share of house-to-house merchandising in the storm window and home insulation fields. Not only has he managed sales crews engaged in this type of work, but also he's punched plenty of doorbells himself. And very successfully, too. Drawing from this extensive background of personal experience, Hughes has prepared the two "lessons" in merchandising residential air conditioning which appear on the following pages.

MANY commercial air conditioning and refrigeration dealers, through their own lack of interest or initiative, are simply "missing the boat" when it comes to the field of residential air conditioning. This is particularly true in the northern and central areas of the country, but it is even true to some extent in the south, where people generally are more aware of the need for and the benefits of air conditioning.

Granted, nobody—but nobody—knows your business and your local market as well as you do, and you should know what you are doing. Yet, sitting in the headquarters of a national manufacturer, we often can see a clearer picture of what's happening in the industry than you can, at a local level.

That is only logical and natural. We work with and talk to dealers like you every day in every section of the country. Not just our own dealers, but other manufacturers' dealers as well. We have scores of men working with dealers who funnel information in to us. We have national and regional sales figures and all kinds of statistics to check against our men's reports.

And on the basis of all this correlated information, we repeat: If you, as a commercial air conditioning dealer, are not in the residential field with both feet—right now—you are missing the profit boat!

Distribution of residential air conditioning is in its formative stage right now. The experimental phase of comfort cooling for the home is over; it is rapidly coming to be a recognized necessity in the up-to-date residence. The jobs already done and the advertising dollars already spent have had their effect. A rapidly growing demand has been created. That demand will be profitably satisfied by someone. If you don't move

WHAT'S IN IT FOR YOU

fast and get into residential work, the heating dealers, the residential sheet metal men, and the home improvement specialists will have the market sewed up so tight you never will get in. It's probably a "now or never" profit opportunity.

And don't forget—let these competitors establish themselves in the residential field, and it is only logical to assume that many of them will expand into the commercial field and become your direct competitors.

Think of this angle, too. No major manufacturer of air conditioning equipment will be able to exist unless he is in the residential field. Volume of commercial packaged equipment alone will not be big enough to keep him competitive. Are you going to force the manufacturers to split their franchises and take residential equipment away from you because you won't sell it?

Take Another Look Around

Won't you please take another look at your own situation? It may not have made sense to go into residential work two years ago, but it does today. Look at it with an open mind, study your own organization and your market thoroughly, and arrive at a new decision. Here are some facts to help you.

Late in 1954, very comprehensive surveys of the residential market were made in several cities. A year later, the same surveys were redone in two medium-sized midwestern cities. A study of the two surveys, as compared to those made in the same cities a year previously, shows some startling facts.

In one city residential volume jumped 47% in the year between the two surveys; in the other it rose 64% (only 10½ months business was included in the 1955 figures). Number of jobs completed totaled 835 in one city and 906 in the other. That's not peanuts business, it's big volume. Is your commercial market growing that way?

Forget the Project Homes

Residential air conditioning work breaks itself down rather readily into three categories:

Project Type New Homes—Generally a high volume but highly price conscious market, with resultant low mark-up for the dealer.

Custom New Homes—Usually higher priced homes, with larger more deluxe jobs. Competitive, but you can sell quality and features directly to the architect or owner, at a sound mark-up.

Existing Homes—Each job a custom installation sold directly to the owner. A wonderful chance to sell creatively, with a good sound mark-up.

Now, we are not trying to imply that you should necessarily work in all three areas of this market. Frankly many of you are not set up to do project home work, and make a profit at it—but you can make a profit in custom new homes and existing

homes. What about the market in those two segments of the residential field alone?

Let's go back to the surveys. In both cities 43% of all the residential work done was in existing homes. In one city 359 jobs, in the other 386. If you figure an average job at \$1500 (which is probably low), that's over a half million dollar volume in each city. In one city a single dealer did 14% of all the residential jobs, and every job he did was in an existing home. In the other city the three largest dealers all did about equal residential volume which added up to 47% of the total. Nearly half of the work these three did was in existing homes.

The Future Looks Fabulous

When you add the custom new home jobs to the existing home installations in these cities, totals are 559 jobs or 67% of all the residential work in one city, and 615 jobs or 68% of the total in the other. This certainly proves that the major part of the present residential market does not lie in the low mark-up project home field.

Notice that in all these figures the percentages are remarkably similar in both cities. The two separate surveys substantiate each other.

What about the future market?

The Du Pont Co. has just released figures on its first national survey of the home cooling field. Only existing homes were surveyed. Remember that this was a *national survey*. If you are in the central or northern areas your saturation percentage is probably lower than the survey indicates.

It's You or the Heating Man

The figures revealed in this survey show that only 4.5% of all homes of over \$7500 value have any mechanical cooling. Of this 4.5%, window units made up 4.3% of the total, while central systems existed in only .2% of the homes. Yet with only .2% saturation, 745 jobs were installed in existing homes in just two cities in 1955 alone. How many jobs does that add up to each year when saturation reaches 2% or 5%? The untapped market staggers your imagination.

More facts from the Du Pont survey. Only 4.5% homes now cooled, but 5.9% intend to buy soon. More intend to buy now than all the jobs ever done. *Of all the homes surveyed, 92% had never been solicited for cooling by a salesman or by mail.*

One more fact stands out clearly in all the surveys. In almost every case the dealer doing the residential air conditioning work was also in the heating business. That seems to be where the rub comes with you commercial dealers—you want nothing to do with the heating business. But let me ask you a question. If this residential business is good enough to make the heating dealer go into air conditioning, why isn't it good enough to make you go into heating?

Certainly your problem in going into residential heating is far less formidable than that of the heating

Continued on page 151

REMOVE SCALE QUICKLY!

WITH **anco** CONDENSER CLEANER



Scale and rust get the bum's rush when ANCO Condenser Cleaner goes to work. This exclusive formula is simply dissolved in the sump while the system is in operation. Within 2 to 15 hours, depending on the thickness of the scale, the tubes are clean and head pressure is down to normal. This superior cleaner is safe for servicemen to use and harmless to equipment. Don't ask for trouble—ask for Anco Condenser Cleaner.

Keep scale and rust from forming with
ANCO WATER TREATMENT



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WATER TREATMENT MANUAL

A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

Kill slime and algae with
ANCO ALGAECIDE



Sold by wholesalers of air conditioning and refrigeration supplies

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RESIDENTIAL AIR CONDITIONING



LESSON #2

How to Build a Profitable

TEACHER: R. C. HUGHES

6 Steps

that lead up to the consummation of
a residential air conditioning sale —

1 THE LEAD: Not just any old lead that every competitor in town is working on, but a real "exclusive" all your own.

2 THE SURVEY: Securing all the data at the home, or from the plans, so that the job can be properly sized, layed out, and priced.

3 THE ENGINEERING: Converting the survey data into a proposal. Experienced salesmen do it themselves. New men will need lots of help and training.

4 THE CLOSE: The presentation of your company, your product, your proposal, and your terms to the prospect in such a way that he will sign an order — right then.

5 THE INSTALLATION AND SERVICE: The installation of a job completed in such a way that you wind up with a **satisfied friend**, not just a customer. Any necessary service handled promptly, efficiently, and courteously.

6 THE SALES FOLLOW-UP: The after-installation follow-up, by the sales department, designed to wring every drop of additional business out of your satisfied customer.

READ that title again. Notice it specifically refers to "merchandising" residential air conditioning, not "selling" it. Reason: because selling is only one of many business functions which, when properly directed and coordinated, will result in a profitable residential air conditioning volume.

Let's get one thing straight right at the start. We are discussing the existing home and customer new home portions of this market only. After all, the best available figures show that this is well over 50% of the total. Project new home work with builders is a different business.

Take another look at that list of six merchandising steps which starts off this article. Try to think of a single person in your company who isn't involved in this program right up to his neck. It's a coordinated activity of your entire organization—it's *merchandising*.

A top flight sales manager in another industry once said: "Merchandising is nothing more than doing a lot of little things—but to be successful you must always do all of them right."

Don't fool yourself by thinking that this kind of merchandising can be accomplished by changing the hat on one of your commercial salesmen. It can't. It takes an expert. If you are serious about residential air conditioning in volume (not just a few now-and-then jobs) hire an expert.

If you're a small operation your expert will be a one-man residential sales department. If you are a large organization hire the expert to organize and set up a separate department. If you are a one-man operation, you will have to learn the merchandising technique yourself.

Did I hear you say "That costs money?" You bet it does, and it always will. These men are among the most highly paid in the sales field, and there are not many of them around. They won't come into your

Merchandising Program

company, wave a magic wand, and produce profitable volume in thirty days, either. This kind of volume must be built, and it takes time. Paying the expert in the meantime is your investment in the potential profit of the residential air conditioning business. After all, did your business get started in the first place without an investment?

Who is this expert you need, what know-how and background does he have, and where might you find him?

He is a man who has a solid background of successfully selling high priced products to home-owners, *in the home*. Those last three words are important. Appliance men used to fill the bill, but they don't anymore, because they no longer sell in the customer's



The Lead

home. They are not up to the night work involved (80% of your sales will be closed in the evening, or over the week-end), and they are not accustomed to working alone.

In general, brush salesmen, vacuum cleaner men, and the like do not work out too well, either. Don't overlook them completely, however, for some of them will fill the bill. Generally their trouble is the price of the merchandise. They are used to making many small sales, not one \$2,000 sale a week. The price scares them, and the "No Sale" streaks discourage them.

Here are some places to look for the type of men you will need: storm window salesmen, insulation salesmen, roofing and siding men, insurance men, real estate

salesmen, farm implement men (if you are in an area where you can find them).

If you are setting up a residential department and have the man to head it up, don't be so particular when you put on more salesmen. When your feet are wet and you're moving, try almost anybody that looks good, if he is honest and genuinely interested in making money by hard work. I've seen good men come



The Survey

from funny places. A minister (needed money), a children's wear man (tired of traveling), a bookkeeper (young and ambitious), were all successful in this type of selling. On the other hand, a policeman and an insurance man that looked good flopped. I wish I knew why.

Stop worrying about air conditioning know-how. This man is smart. He is probably making \$150 a week minimum, and he may make twice that. He will learn fast, and what you must teach him is no tougher than what he has learned in the past. If you think it is, pick up an insurance man's rate book and try to understand it; or estimate a roofing job on a big Victorian house from the ground.

You won't teach him by handing him a few pamphlets and parking him in a quiet office to read. He needs a well organized instruction course with lots of personal help by a competent teacher. Your manufacturer should be able to help you set up a special department to handle sales training.

When you find this man and add him to your or-

PROFITABLE MERCHANDISING

ganization to head up your residential sales department, you are set for a good fight for this market.

In my opinion the toughest part of the whole merchandising job is the creation of a really good lead. A lead isn't somebody who picks your name out of the yellow pages and phones in to get an estimate. That's just an invitation to a price cutting contest. Everybody in town has that lead.

A real lead is either a prospect in whom you have created the "desire to have"; or it's someone who comes to you because you have been well recommended by someone he trusts. That kind of lead results in the sale of the right installation (not a cut-quality-to-meet-price job) at a profitable price.

You create leads three ways—by canvassing, by proper use of your satisfied customers, and by advertising and promotion. It is a well organized lead-producing system that functions automatically the year around. Good leads not only produce business but they are one of the important factors in keeping contented salesmen.

Canvassing is a nasty word to any salesman. We all know it pays off better than anything else we do, yet we detest doing it. The existing home business still



The Engineering

tends to be somewhat seasonal, but is rapidly outgrowing this phase. Results in this field should be good from early spring through the summer. Select the areas to work: warm air heat areas—high price bracket homes. Homes that have been there a few years so that part of the mortgage is paid off. Try to teach your men to set aside canvassing time every day, and then do it. An hour or two a day of real conscientious work should produce enough leads to keep a salesman hopping to follow his prospects.

I do not believe in canned approaches or the phoney "survey" types of approach. Be natural, pleasant, and a gentlemen. Tell Mrs. Homeowner who you are, whom you represent, and what you want. Even if she says "not interested", try to leave your card and literature. It may reach Mr. Homeowner and he may be a ripe prospect. If no one is home, leave your card and promotion anyway—make promotion work for you.

Every man has his own methods. For me, back doors work better than front; bad weather better than good weather (what housewife will let you stand outside in the rain)?; 9:30 to 11:30 a.m. the best hours. Carry no briefcase; pack what you need in your pocket. Be neat, dress well, look good.

Custom new home leads require a different method. Keeping intimate contacts with all your residential architects and custom builders is the best method I

know. Most of them need design and layout help. If you gain their confidence and help them, you will get their jobs.

By the way, telephone canvassing either by the salesman or by special girls has worked well in the insulation, siding, and window business. I have never seen it done in air conditioning, but it is worth a try. The trick has always been to develop the proper "pitch". Once you get it, don't change it. Use it verbatim.

Next source of leads is your satisfied customers. From one-third to two-thirds of all your work should come from this source. If you are just starting residential work, you obviously have no residential "user



The Close

list". Then you use your commercial list. Storekeepers and businessmen have homes, they have money, you have worked for them, you know them, they are a logical starting point. Use your customers.

Provide a user list for every residential salesman. Assign a group of users to each man to call on. Bombard your users with residential-type direct mail. Use "profit sharing" cards to interest them in giving you other interested names.

Once you sell a job, and go to work on the installation, really move into high gear with your promotion. Keep that installation truck neat, clean, and attractively lettered (where else can you hire a traveling billboard?). Don't park it in the back yard; keep it in the street in front of the home. See that the salesman canvasses every house in the neighborhood, *while the truck is there*.

Use job signs in the front yard. Send "Look what's happening at the Smith's house" direct mail to all the



**The Installation
and Service**

neighbors. Wring every drop of promotion value out of every job you do.

Now add to all this a bang-up advertising and promotion program designed to create leads. Use every medium that makes sense in your area from a cost standpoint.

Direct mail programs to selected homeowner lists are generally productive. Your manufacturer probably has the material (we have special residential programs which we mail for our dealers). Lists can be made up from the telephone directory, tax listings, and your own knowledge of the area. Many communities have professional direct mail houses that can supply lists tailor-made for your needs.

Use newspaper, radio, and TV. Everybody has a home, everybody sees and listens. Wastage is low with mass media in the residential field. In newspapers, consistent small space is often better than periodic big ads. On radio or TV, many spots are often better than a weekly program. Sometimes, however, the reverse is true. You cannot generalize; it depends on conditions in your area.

Exhibit in local home shows, fairs, and similar activities. Work up a good talk on residential air conditioning and give it every chance you have before clubs, community groups, or anyone who will listen. Several manufacturers have excellent films to help you with these meetings.

Remember: be consistent, do everything, do it well—and leads will not be the weak point in your sales chain.

The survey is an important part of your sales campaign. You have two objectives at this point: first, get the data needed to lay out and estimate the job; and second, sell the prospect on the idea that you know your business and will really do a top-flight job. Don't try to sell the job now. Don't even "guesstimate" price. That's fatal.

Adequate data and survey forms are available from all manufacturers. One secret of residential selling is to "put on a show" for your prospect. Make the survey a demonstration of your care and thoroughness. Take time, measure carefully, ask questions. Put over the idea that you are an engineer, an expert, who is gathering data. Don't make it simple. Stage a good act.



The Sales Follow-Up

Even if you have done an exact duplicate home the day before and have every figure you need, go through the full survey routine anyway—it is important.

Then make a date for a definite appointment to come back with your figures. This appointment *must* be with Mr. and Mrs. Homeowner together. During the survey ask discreet questions to help you later in your close: How many children? Any allergy sufferers? Is dust and dirt a problem?

If the layout and estimating is not done by the salesman, it certainly must be done with him. That is one way to teach him, and it is important that he thoroughly understand every part of the proposal. Simple sketches of equipment layout, and similar devices, are helpful in closing the sale. Concentrate on selling the best job, but if there is an alternate good way you'd better figure that too.

Now prepare a proposal. It should include a written description of the work to be done and the equipment to be supplied, on a contract form ready for signature; sketches, photos and specification sheets on the equipment; promotion material on your company and your

Continued on page 140

Home Air Conditioning Betters Family Living

SOCIOLOGISTS of the future may credit residential air conditioning with having been as much of an influence on American living habits during the last half of the 20th century as the automobile proved to be during the first half. This opinion is advanced by the National Warm Air Heating and Air Conditioning Association, based on reports of family experiences with air conditioning in the Austin "Air Conditioned Village", Austin, Tex.

Sponsored by the Research Institute of the National Association of Home Builders, the Austin Village—a 22-home community of air conditioned homes—was built in 1954 for the purpose of research testing of air conditioning under actual living conditions.

A team of research engineers handled the testing of the systems, while another team of psychologists queried Village families about their summertime experiences with air conditioning and compared these experiences with those of 22 neighboring families living in non-air conditioned homes.

Preliminary report data demonstrates that the behavior patterns of families living in air conditioned homes are startlingly different from those families which are subjected to the summer-long struggle against discomforting heat and humidity conditions of non-air conditioned homes. For instance, it was found that the air conditioned families spent a significantly greater number of their waking hours together as a family group than their non-air conditioned neighbors.

HOURS SPENT TOGETHER AS A FAMILY GROUP: (Average week during the summer — walking hours only)

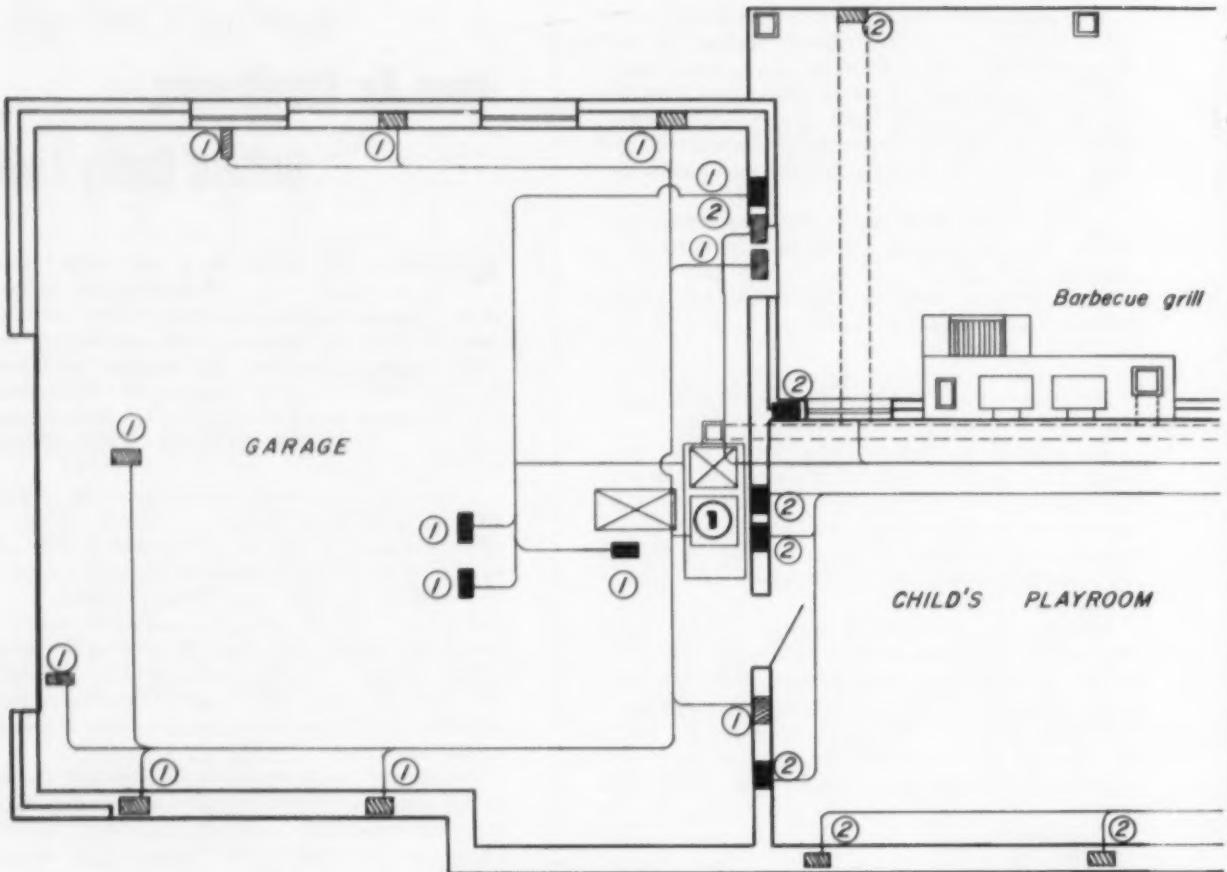
FAMILY UNIT	In Air Conditioned Homes	In Non-Air Conditioned Homes
Couples — no children	34	22
Families — with small children	36	30
Families — with teen-age children	24	14

Entertaining friends and relatives at home increased 300% in the case of air conditioned adult families and 400% for air conditioned families with children.

According to test data, air conditioning was found to dramatically affect the eating and sleeping habits of the air conditioned families as compared with their non-air conditioned neighbors.

In the Air Conditioned Village, mothers were able to prepare, and appetites were able to accept, more hot meals containing 40% more energy-giving calories than meals served in non-air conditioned homes.

Both adults and children in the air conditioned houses slept longer, and children took better afternoon naps.



One House... Two Systems

HERE'S unusual evidence that the use of *two* central year-round systems in a single house, under some conditions, may have several advantages for the owner and for the contractor as well, as compared with a single combination unit.

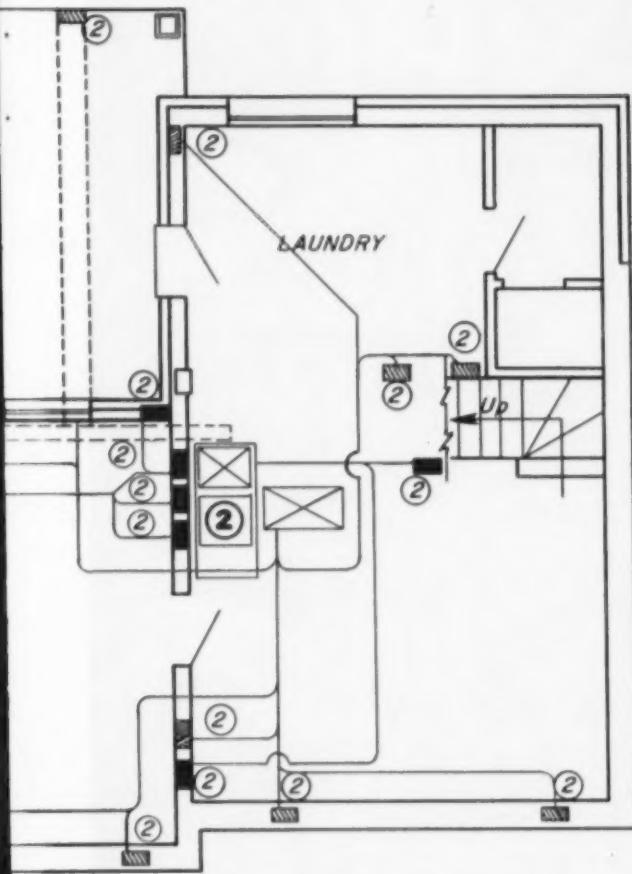
The case is that of the residence of Dr. and Mrs. John C. Condry, in Loudon Heights, a suburb of Charleston, W. Va., and the "double-barreled" installation was done by Heating & Cooling, Inc., Charleston, of which L. C. Black is the chief proprietor.

In addition to using two separate systems, each with its own cooling unit and furnace, the installation involved a number of special problems which the contractor was called upon to solve.

The house has approximately 3800 sq.ft. on its two main floors, including a living room, dining room, kitchen, sun porch, six bedrooms and three baths.

Originally, what prompted the idea of installing two separate year-round systems was the fact that three-phase electricity was unavailable at this location. The cooling capacity required had been estimated at 6 hp, but no single unit was available that could supply that amount except at $7\frac{1}{2}$ hp, and on a basis of three-phase current.

So, Black started figuring on what could be accomplished by using two units of 3 hp each, on single-phase, 220 volts. The more he figured, the more advantages he discovered. The first of these was based on



REVERSE CYCLE DUCT SYSTEM was employed with each of the two separate heating-cooling combinations shown in this plan of the basement area. Shaded blocks in walls indicate risers used for warm air supply in winter and cold air return in summer. Solid black blocks show risers used for cold air supply in summer and warm air return in winter. Circled numbers indicate those portions of ductwork connected to each air conditioning unit.

the idea of connecting each unit to an entirely separate airduct system instead of running them in tandem in a single network of ducts.

By locating one combination unit of furnace and air cooler about 20' from one end of the house, and the other combination about 20' from the opposite end, both in the basement and with about 30' between them, Black saw at once that he would gain the advantage of being able to use smaller ducts than would be required by a single combination system.

In turn, by giving one of the units a slightly larger area to serve than the other, he could provide a cooling emphasis in the other area where it was desired by the owner. Likewise, in figuring the heating requirements, he found that separate furnaces—using the same ducts as the cooling units, would also give a

Continued on page 135



Air conditioning

of this new split-level home presented many special problems which were solved by this "double-barreled" installation



TWO COMBINATION UNITS like this are used to air condition this West Virginia residence. Each combination has its own separate ductwork system, but each cooling unit shares the same ducts as its companion furnace. A by-pass arrangement provides for reversal of air flow, depending upon whether heating or cooling units are in operation.



THERMOSTATIC REGISTERS in this sun room provide prompt response to rapidly changing temperature demands. Heat supply is controlled directly; degree of cooling is indirectly determined by increasing or decreasing volume of return air.

WHEN IT COMES TO TUBING
... ARE YOU IN THE DARK?

When you're in the dark about tubing and want information, data, or knowledge, ask the man who knows—your best authority is Penn.

For over a third of a century Penn has been drawing a better tube, as well as solving tubing problems for all industry. Penn quality goes further because there is more usable tubing per pound—less rejections and a minimum of waste. You'll like the way the Penn Engineers and Sales Representatives approach, treat, and solve your tubing requirements. Ask for the Penn story "How much more Quality weighs."

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FABRICATED • FLARED • FITTED



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Circle No. 93 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

PERMANENTLY MOUNTED in the masonry walls during construction, 37 window-type room air conditioners cool this Florida apartment building. Units are readily removable from the built-in sleeves (below) to facilitate inspection and service.



Through-the-Wall Installations *provide built-in comfort with window units*

ROOM air conditioners, installed in specially prepared wall openings rather than in window areas, are becoming increasingly popular as a means of providing warm weather comfort for residents of "The Sunshine State".

In private homes they are used to supply room-to-room cooling as required. In larger numbers they are installed in the same manner to air condition entire apartment buildings. While through-the-wall installations can be made without too much trouble in existing structures, this technique is ideally suited to new construction, where the necessary openings can be provided at the time the building is planned and erected.

A typical example of this growing practice, as applied to apartment house construction, can be seen in the new three-story Avondale Apartments at Bal Harbour, Fla., a suburb of Miami. Here 37 room air conditioners were installed through-the-wall at the time the building was in progress.

The room units were located directly beneath windows in every case. Mounted flush inside walls, they

protruded only 17" beyond the outer surface of the building. A 1½-hp unit was installed to cool every living room, and a ½ or ¾-hp unit to serve each bedroom.

The standard outer shells or casings of the conditioners were set in place as the building's 10"-thick block walls were erected. Spaces between these casings and the wall openings then were weather-sealed with plaster and cement. Later, after the building was completed, the air conditioning units were easily inserted into the built-in casings or sleeves. They were then ready for immediate use, after being plugged into the convenient electrical outlets provided at the time the building was being constructed.

According to officials of Sloane Air Conditioning Co., which handled the job, installing the air conditioners during construction of the building made it possible to hold down installation costs to between \$10 and \$12 per unit. This compares favorably with the charge for standard installations in casement windows, which are so prevalent in this area.



ON THE WAY to becoming truly air conditioned is this Phoenix home in which True Air Conditioning Co. is replacing the roof-mounted evaporative coolers with package air conditioners. Units on each end already have been converted, while one of the "evaps" still stands in the center. Inset shows details of mounting method.

Where there's an "EVAP"

there's a Prospect . . .

. . . for mechanically refrigerated home cooling equipment. Here's how an enterprising Arizona dealer carefully cultivates this fertile field for replacement installations.

DEVELOPMENT of a simple system whereby water-cooled evaporative coolers can be removed from the roof of a home and package air conditioning units inserted in their place has opened up a profitable replacement market for True Air Conditioning Co., Phoenix, Ariz.

The True organization, a residential air conditioning dealership that also has been responsible for many of this desert capitol's larger commercial air conditioning systems, is depending heavily upon the replacement potential represented by scores of thousands of existing evaporative coolers.

"Just as is true in other sections of the country, we have found that we have a tremendous selling job

to do", reports E. C. "Pat" Johnson, president of the firm. "Even though Phoenix maintains one of the highest mean temperature average through the year of any city in the country, homeowners generally are convinced that air conditioning is too expensive.

Sells Economy Angle

"Consequently, we have hit the economy angle hard, concentrating on pointing out to prospects how little it actually would cost them, in terms of both installation and operation, to enjoy all of the benefits of mechanically refrigerated air conditioning, if they would allow us to convert their existing evaporative cooling systems."

A continuous direct mail program, newspaper advertising, and an elaborate use of photographs in "clinching the sale", are the chief merchandising weapons which True Air Conditioning has used to date. Each of True's three executives — Johnson, vice-president Russell Bergstrom, and secretary-treasurer L. E. Ulanger — carries a thick file of photographs which shows one-day conversions which have been carried out in Phoenix homes. These photos tell the story far more effectively than reams of descriptive copy could.

Under the True remodeling plan, the evaporative cooler and its water lines are completely removed, along with the customary iron stand on which the cooler

rests. Then a new supply duct to the main trunk in the house is inserted through the original opening and insulated with glass fiber within.

A return duct, usually of short length, is provided in the ceiling of the hall, where in most homes it is furred in. At the hall ceiling return inlet, a permanent cleanable metal filter is installed.

Uses Sheet Metal Stand

Next, the package unit selected is mounted on a heavy sheet metal stand which is fitted to the contour of the roof, tarred in place, and filled with an insulating material to diminish sound and vibration. This box-like stand, Johnson has found, provides for a more attractive base and actually forms a sturdier platform than the type of angle-iron table commonly used to support the evaporative coolers.

After all electrical connections have been made, a sheet metal cover, louvered on three sides for air circulation, is slipped over the package unit. This protective shell has an inch-thick glass fiber lining, again more weatherproof than the usual coverage provided for the evaporative coolers and again quieter in operation.

Compiles Case Histories

"To back up our economy story," Johnson says, "we document our arguments with figures drawn from actual case histories of installations we have completed. For instance, in one example which we quote frequently, the highest operating cost for a single 2-ton installation during the hottest month of the year amounted to only \$18. In one large apartment installation where 25 evaporative coolers were replaced with 25 1½ and 2-ton units, the refrigeration cost was only 25% greater than the water meter cost of operating the evaporative variety."

Johnson makes a practice of having every conversion installation photographed by a top-notch commercial photographer. One print then is presented to the homeowner, who invariably can be de-

Continued on page 157

ATOMIC AIR CONDITIONING

... will it soon be a practical reality?

AN atomic year-round home heating-cooling system, powered by a baby nuclear reactor hooked up to a boiler, now is foreseen as a "practical reality, possibly within a few years."

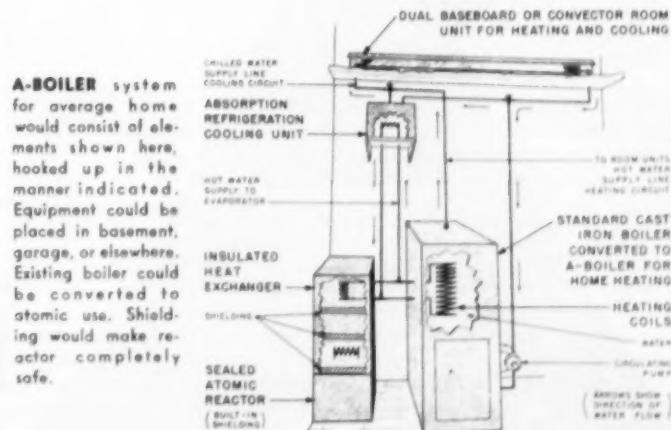
To the U.S. homeowner, the "A-Boiler" system — explosion-proof and safe from radioactivity — in his garage or basement, will bring, among other benefits, complete freedom from the cost of conventional fuels. The system will both heat and cool the home for approximately 6 years on a single charge of fissionable material hermetically sealed within the multiple-shielded "portable" reactor. Cost for the 6-year charge is estimated at about \$300. About twice the size of an auto battery, the reactor would be replaced with another sealed unit at the same price after its charge has been exhausted.

The A-Boiler system, which can be added to existing home heating boilers without removing them, will provide the home with chilled water cooling in summer and hot water heating in winter, plus virtually unlimited year-round household hot water, and heat for melting snow from walks and driveways.

Announcement of this revolutionary development has been made by Robert E. Ferry, general manager of the Institute of Boiler and Radiator Manufacturers. Quoting industry experts, including Frank L. Phillips, New York consulting engineer with wide experience in heating and air conditioning and Atomic Energy Commission projects, Ferry points out that the "chief foreseeable problem holding up availability of the A-Boiler system is the need for adequate supplies of fissionable material at economic cost." As for engineering knowledge of design, material and shielding of the baby reactor, this "appears to be no longer a problem", he reports, and granted adequate supplies of fissionable material "the home A-Boiler could be produced today".

Summer cooling in homes by the A-Boiler system would be accomplished by addition of a small absorption refrigeration unit. Wa-

Continued on page 155





So Halstead & Mitchell
engineers said:

'THIS HAS A BEARING ON COOLING TOWER PERFORMANCE'

Nothing has more bearing on cooling tower performance and life than do tower fan bearings. On them turn the induced draft cooling tower's *only moving parts*.

Announcement by Halstead & Mitchell engineers of a *permanently sealed and lubricated* fan bearing means a bearing so designed as to completely eliminate moisture—and consequent rusting of the bearing balls and races. The *elimination of periodic greasing* cuts your tower maintenance costs to an absolute minimum . . . literally adds years to cooling tower life.

With not a single bearing failure reported from the hundreds of these "new bearing" towers in actual use, Halstead & Mitchell offers you . . . now more than ever . . . the best buy in cooling towers on the market today.

SUPER-QUIET, 4-BLADE FANS, TOO!

There are new fans, too, on Halstead & Mitchell Cooling Towers—deep-pitch fans which operate at much, much lower speeds—actually *cut cooling tower noise level in half*. Sturdy, stainless steel fan blades . . . stainless steel fan shafts . . . make sure your tower will have not only a quiet life, but a long one, too!

For Complete Details, Write for Bulletin CT-584



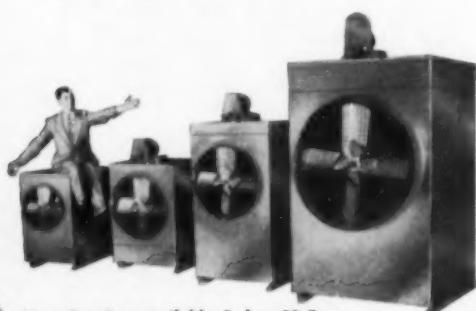
Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

20-Year
Guarantee!

on the wetted deck surface against rotting or fungus attack is an extra given you only by Halstead & Mitchell. Combined with the H & M Protected Steel concept, it offers unsurpassed protection against water and weather.

H & M COOLING TOWERS ARE AT LEADING
WHOLESALEERS EVERYWHERE



New Bearing available 5 thru 50 Tons

Circle No. 94 on Reader Service Card

MAY, 1956 • COMMERCIAL REFRIGERATION

How To Figure Home Air Conditioning Costs



FLAGS ON MAP show approximate amount of electricity required to operate a central home air conditioner for an average cooling season in different parts of the country. Table at right lists kilowatt hours per ton of cooling for each flag. Kwh are estimated for air-cooled units. For a dollar figure on seasonal operating costs, kwh for unit installed are multiplied by estimated 24-hour cooling load for house and local electric rate per kwh. (Map and data copyright 1956 by Carrier Corp.)

KILOWATT HOURS

0 - 499	2,500 - 2,999
500 - 999	3,000 - 3,499
1,000 - 1,499	3,500 - 3,999
1,500 - 1,999	4,000 - 4,499
2,000 - 2,499	4,500 - 5,000

"IF I air condition my house, how much will it cost me per year to run the cooling equipment?"

That's a question the average residential air conditioning dealer is called upon to answer almost every time he makes a contact with a homeowner prospect. To simplify this answer as much as possible, Carrier Corp. engineers have conducted considerable research into the matter of electrical current requirements for air conditioning equipment.

The data shown on the map above makes it possible to translate cooling load estimates into dollars and cents of operating costs for a normal cooling season. The figures show the approximate electrical use per

ton of cooling in different sections of the nation. This cost estimating method is based on the number of days a year and the number of degrees the temperature goes above 70 F., and on the temperature swing in each location.

First, a 24-hour load calculating method is used to estimate the average amount of cooling required over the entire day and night. This estimate also is used to determine the size of the unit required. Kilowatt hour consumption for the particular unit to be installed is then multiplied by the load estimate and by the local electric rate per kilowatt hour to determine actual operating cost.

by Edward Dowis

Proper Testing of Air Conditioning Installations

. . . can help you sell more equipment and improve the performance of existing systems. Here are some practical pointers on what instruments you need and how they should be used to achieve best results.

ACCURATE performance measurement may be as important in keeping a room air conditioner sold as it unquestionably is in assuring maximum customer satisfaction with a larger system. It can demonstrate, beyond question, when conditions require additional equipment, and keep a user happy by assuring him that the equipment he has is doing all it was designed to accomplish.

When it comes to adjusting a larger system, whether package or central station type, adequate test equipment is essential, plus a considerable amount of know-how concerning its proper use.

Correct balance in either a cooling or heating system is an ideal seldom accomplished under all conditions but it is universally recognized as being most important in achieving even, satisfactory operation. One area too cool, another too warm; some rooms with too much air motion and some with too little — these are common complaints even in buildings with well designed air conditioning installations.

Balancing has been greatly simplified by development of instruments which accurately indicate air velocities and pressures anywhere in the equipment or in the space being served. All capacity tests require knowledge of the amount of air being conditioned. The supply of air to a given area must be measured to tell how much conditioning it is receiving. The measurements are determined from velocity readings.

It is assumed that the installer or service engineer is familiar with such basic instruments as pressure gauges and thermometers. In addition to showing conditions in the refrigerant circuit, they are useful

in showing some air flow conditions which may need correction.

Low suction pressure with frosting coils may be due to dirty filters, improperly set dampers, or fans running too slowly. This is because reduced air flow does not load the coil to compressor capacity. To determine how much air is passing through the coil requires some form of air flow meter.

Thermometer readings of air entering and leaving a conditioner may indicate even smaller variations from normal air flow. A temperature drop greatly exceeding the normal of about fifteen degrees also indicates reduced air flow. While delivered air is cooler, capacity is reduced because less air is being

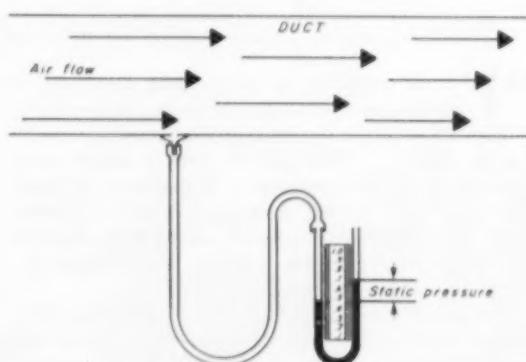


FIG. 1—Static pressure measured with manometer.

conditioned. The percentage of sensible cooling as compared to moisture removal will also be less, since air remains in contact with the coil long enough to lose more moisture. This reduces refrigeration capacity available for sensible cooling.

Rate of air flow is commonly expressed in cubic feet per minute. This is found by taking the velocity in feet per minute and multiplying by the area, in square feet, through which it passes. An instrument commonly used to measure velocity in an open space or at the face of a grille is the anemometer. These are made in two types — Revolving vane anemometers and deflecting vane anemometers.

A revolving vane anemometer consists of a free turning, multi-vaned propeller connected to a gear box, with dials which actually count revolutions of the propeller but are calibrated in linear feet of air passing through the instrument. To get feet per minute, the test must be run for a minute or fraction thereof, and the accumulated linear feet read from the dials.

There is usually provision for resetting the dials to zero and starting or stopping the count instantly, with the propeller in motion. Each instrument must be calibrated individually and correction factors added to or deducted from dial readings, depending upon the velocity.

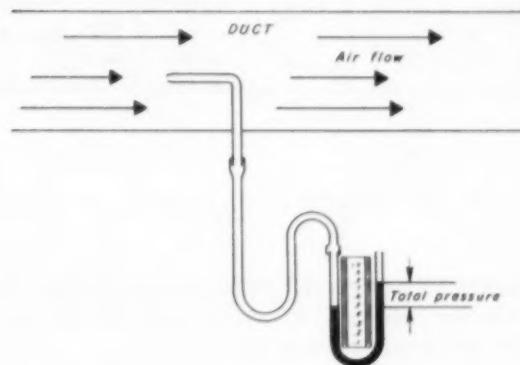


FIG. 2—Total pressure measured with manometer.

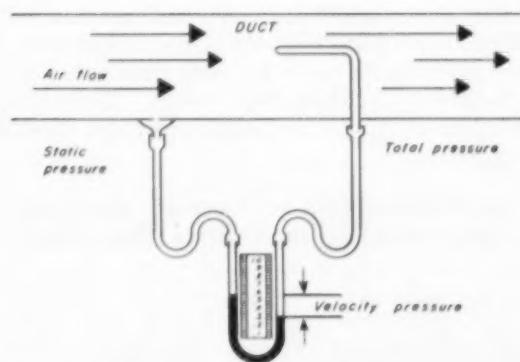


FIG. 3—Velocity pressure measured with manometer.

The deflecting vane anemometer is similar in construction except that the propeller wheel does not revolve but is restrained by a hair spring which measures the pressure exerted by the moving air. The dial is calibrated directly in feet per minute.

To measure the volume of air passing through a grille, the anemometer is held against the face of the grille and readings taken at as many positions as possible, covering the entire face area. Experience has shown that multiplying the average velocity by the average of gross face area and net air area of the grille will give a reasonably accurate cfm measurement.

Another recommended method is to construct a box frame of cardboard or light wood at least a foot deep around the perimeter of the grille. Average velocity at the open end times gross area will give cfm.

Anemometers are available to which an air scoop may be attached to enable readings to be taken at slotted openings of square or round ceiling diffusers. Cfm factors are provided by manufacturers of various diffusers for translating anemometer readings.

Since it is difficult to get a conventional anemometer into ducts or other inclosures, a tube which can be inserted through a small hole is usually used to measure velocity and pressure in such spaces. There are two pressures in a duct carrying moving air. These must be distinguished in order to get true velocity.

Static Pressure is the pressure exerted at right angles to direction of flow, or the pressure which tends to rupture or collapse the duct. It is necessary to overcome friction loss and keep air in motion. It is expressed in inches of water pressure which it will exert on a manometer. Static pressure can be read as indicated in Fig. 1.

Velocity Pressure is additional pressure which can be measured by a tube facing the air stream. It is velocity pressure which indicates feet per minute at which air is traveling.

A tube inserted in a duct as shown in Fig. 2 will transmit both the static pressure and velocity pressure.

Continued on page 121

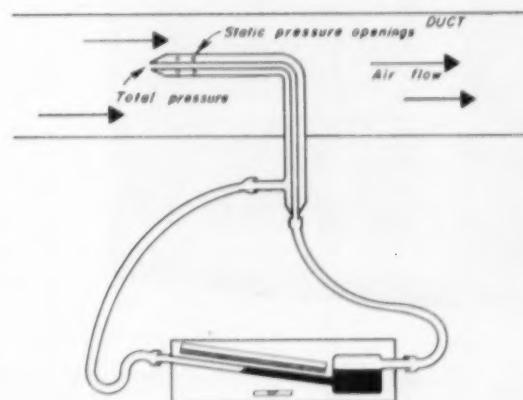


FIG. 4—Velocity pressure measured with combination of Pitot tube and manometer.

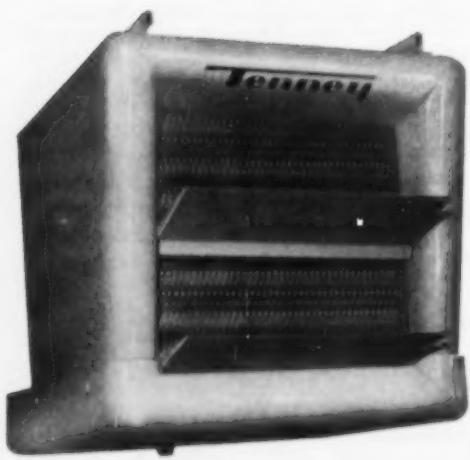
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MAY, 1956 • COMMERCIAL REFRIGERATION

PROPER TESTING

This combination is greater than static pressure alone and is called *Total Pressure*.

The difference between total and static pressures will be velocity pressure. Velocity pressure can be read directly by connecting the static and total pressure tubes to opposite ends of the manometer tube as shown in Fig. 3.

Fittings illustrated in Figs. 1, 2 and 3 are subject to inaccuracy due to aspirating effect in a turbulent air stream. This can be minimized by using some form of Pitot tube. This consists of an inner tube which senses the total pressure. An outer tube has

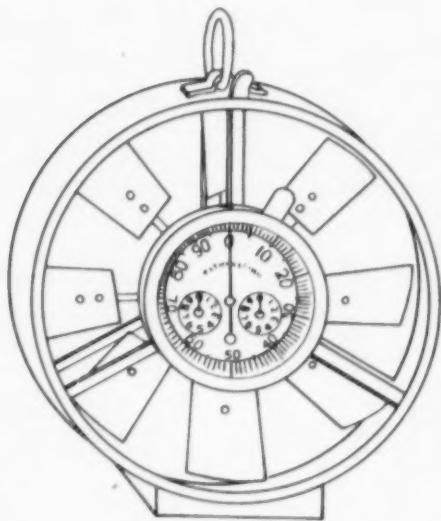


FIG. 5—Revolving vane anemometer for use in measuring air flow in open spaces and duct openings.

holes in the wall for measuring static pressure. This tube is illustrated in Fig. 4.

To get required sensitivity in hundredths of an inch, manometers used in air conditioning are of the inclined tube type, sometimes filled with a special oil but calibrated to measure true water pressure in inches by hundredths. Velocity pressure in inches of water can be converted to feet per minute velocity by this simple formula: $FPM = 4005 \times \text{velocity}$ pressure. This formula applies to standard air only but is suitable for air conditioning applications.

One very versatile and widely used instrument contains a jewel-mounted vane connected to a dial pointer. It is held in position by a spiral spring. The dial is calibrated directly in feet per minute and inches of water pressure so no reference to tables or mathematical calculations is required. An assortment of fittings make it usable over a wide variety of velocity and pressure ranges. Static, velocity and total pressure readings are taken through fittings which convert pres-

sure into an air stream which impinges upon the vane.

Some instruments make use of an air stream to cool a heated thermocouple. The change in current is indicated on the dial of a sensitive electric meter calibrated in feet per minute or inches pressure. Pressure readings are possible by use of a fitting which utilizes the pressure to send a small stream of air over the sensing element. A push button system may make it possible to use such instruments over a wide range of velocities. The small size of the sensing element makes it usable with grilles of any type, or it can be held within the openings of diffusers by a handle.

Air flow in a duct or through a grille is never uniform, so it is necessary to take a number of readings in all parts of the area being investigated. The average of these readings must be used to calculate the amount of air being handled.

Work being done by a conditioner in terms of Btu per hour — cooling, heating, humidifying or dehumidifying — is determined by the quantity and quality of air supplied to the space being conditioned. Total heat per pound of air is indicated by wet bulb temperature. This temperature is affected both by sensible temperature and moisture content. Most air conditioning texts contain tables showing total heat per pound at any wet bulb temperature. A condensed version of such a table (handy to carry in a pocket notebook) is presented with this article.

Total Btu/hr conditioning effect is calculated by multiplying the pounds per hour of air handled by

Continued on page 156

TOTAL HEAT CONTENT OF AIR AT VARIOUS WET BULB TEMPERATURES

Condensed from Goodenough's Table of "Properties of Air"

Wet Bulb Temp.	Btu per Pound	Wet Bulb Temp.	Btu per Pound
40	15.21	65	29.65
41	15.67	66	30.39
42	16.14	67	31.15
43	16.62	68	31.92
44	17.10	69	32.71
45	17.59	70	33.51
46	18.09	71	33.51
47	18.60	72	35.17
48	19.12	73	36.03
49	19.65	74	36.91
50	20.19	75	37.81
51	20.74	76	38.73
52	21.30	77	39.67
53	21.87	78	40.64
54	22.45	79	41.63
55	23.04	80	42.64
56	23.64	81	43.67
57	24.25	82	44.72
58	24.88	83	45.80
59	25.52	84	46.91
60	26.18	85	48.04
61	26.84	86	49.20
62	27.52	87	50.39
63	28.22	88	51.61
64	28.93	89	52.86

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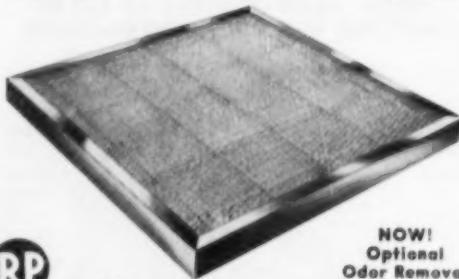
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Circle No. 97 on Reader Service Card

122

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

VIBRATION ELIMINATORS for application to refrigeration and air conditioning compressor units or to any general piping work where vibration is encountered are presented in Bulletin VE312 issued by American Brass Co.'s Metal Hose Div. Dimensional data tables are provided and construction features are pointed out.

Circle No. 154 on Reader Service Card

AIR CONDITIONING UNITS — both room type and central self-contained models for residential and commercial applications — are illustrated and described in a pair of folders available from Great Northern Mfg. Corp. Complete specifications are provided, and features are described in full.

Circle No. 155 on Reader Service Card

SPECIFICATIONS AND FEATURES of its "water saver" cooling towers are included in a two page sheet available from Fulton Steelcraft Co. Folder lists construction details of the units, which are available in sizes from 2 ton through 10 tons. Specifications of individual models are also included.

Circle No. 156 on Reader Service Card

SIMPLIFIED SELECTION procedure, complete with all mechanical and dimensional specifications and performance data, is graphically presented in an 8-page catalog (50-D) on "Flow-Cold" packaged liquid chillers available from Acme Industries, Inc. Models are illustrated and special features listed.

Circle No. 157 on Reader Service Card

NINE NEW HAND tools for sheet metal workers are introduced in new Bulletin 78 issued by Niagara Machine & Tool Works. They are three new compound leverage shears, three new straight snips, and three new combination snips. Also described and illustrated are Niagara bench shears, hammers, mallets, stakes, bench plates, rivet sets, groovers, hollow punches, bending machine, roofing folder, pipe crimper, roofing double seamer and gutter beader.

Circle No. 158 on Reader Service Card

PACKAGED COOLING TOWERS including vertical and horizontal induced and natural draft units are pictured and described in the latest Dover Mfg. Co. catalog. Photographs of actual applications of towers for industrial use are provided. General specifications and dimensions and engineering data also are supplied.

Circle No. 159 on Reader Service Card

HANDY READY-REFERENCE bulletins on newest air conditioning developments in packaged water chiller line have been published by Drayer-Hanson, Inc. Air-cooled and water-cooled models in 2 and 3-ton sizes are covered in two separate publications, and specific sales features are stressed. Equipment lists include complete refrigeration cycle piping, liquid line sight glass, refrigerant drier and strainer, and refrigerant compressor. Informational charts and electrical characteristics round out both bulletins.

Circle No. 160 on Reader Service Card

PORTABLE RECORDERS FOR relative humidity and temperature are described and illustrated in the new six-page two-color bulletin just made available by The Bristol Co. Designated as Bulletin H1008, it shows samples of typical records made by the "Thermo-Humidigraph" recorders which are designed to record conditions in the room or chamber in which they are placed. Permanent mounting models also are shown.

Circle No. 181 on Reader Service Card

USE AND FUNCTION of its 7-Day and Skip-A-Day dials for time switches are described in two folders just made available by the Tork Clock Co., Inc. The booklets are designed to help the contractor and engineer select the model best suited for their individual needs in commercial air conditioning applications. Bulletin No. 511 details air conditioning time controls for both window and commercial models. The No. 155 bulletin, called "Light & Power Time Switches," is more comprehensive and was designed as an in-use manual for all time switch buyers and users.

Circle No. 182 on Reader Service Card

SQUARE AND SLOTTED series of air diffusers are completely described and illustrated in this 12-page bulletin (K-27) issued by Connor Engineering Corp. Selection chart, dimensional drawings, and complete specifications are presented for these "Kno-Draft" diffusers referred to as the "architects' group".

Circle No. 183 on Reader Service Card

COMPLETE SPECIFICATIONS on all summer and winter air conditioning models are contained in 12-page catalog published by Airtemp Div., Chrysler Corp. Booklet provides information of interest to builders, architects, consulting engineers, contractors, and homeowners planning to modernize their heating systems or add air conditioning.

Circle No. 184 on Reader Service Card

ILLUSTRATED CATALOG sheet, 3IC5a, now is available on new "Recold" midget evaporative condenser designed for residential air conditioning and other low tonnage applications. Prepared by Refrigeration Engineering, Inc., the literature describes the 2, 3, 4, and 5-ton sizes.

Circle No. 185 on Reader Service Card

CAREFULLY ILLUSTRATED Lennox Industries, Inc., pamphlet provides picture series for any type of installation of "Stowaway" air conditioning unit. Six-page sheet describes installation procedure for homes of varying construction. Model specifications also are included.

Circle No. 186 on Reader Service Card

SPECIFICATION SHEET on gas-fired, year-round air conditioners in 2 and 3-ton sizes has been released by Worthington Corp. Complete dimensions and operating data for the unit are listed.

Circle No. 187 on Reader Service Card

EXTENSIVE AND DETAILED literature has been issued by Bell & Gossett Co. describing its packaged liquid cooler. A colorful 12-page booklet and several inserts from specifications Bulletin No. HA-555-7½ outline the functional features of the product. Specification information covers the 7½, 10, 15, 25, 30, 40, and 50-ton sizes.

Circle No. 188 on Reader Service Card

CONTINUOUS CIRCUIT water-cooled condensers are described in Edwards Engineering Corp. Bulletin TT-156. Tables and performance charts list available sizes and illustrate counter flow Freon condenser performance.

Circle No. 189 on Reader Service Card

(Turn to page 84 for more Useful Literature)

Circle No. 98 on Reader Service Card



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Circle No. 99 on Reader Service Card

WHAT'S NEW

in Air Conditioning Equipment

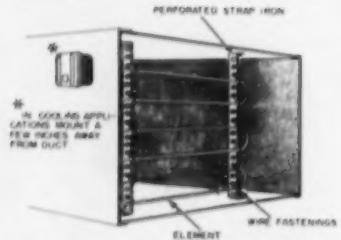
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For more New Products turn to page 88)

Electronic Thermostat

Product: Electronic thermostat with 27' temperature-sensing element.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



Features: Long temperature-sensing wire is enclosed in $\frac{1}{8}$ " copper tubing, permitting wire to be easily arranged to record average of stratified temperatures that exist in large heating and air conditioning ducts in commercial buildings. Unit also can be used to give average readings of concrete slab temperatures in radiant floor panel heating systems. Instrument has operating range from -30 to 225 F, and can be used with any standard Minneapolis-Honeywell electronic or electronic-pneumatic control system.

Circle No. 205 on Reader Service Card

Centrifugal Fans

Product: Two types of centrifugal fans for commercial and industrial ventilating, air conditioning and heating applications.

Manufacturer: Chicago Blower Corp., Franklin Park, Ill.

Features: Wide range of wheel diameters is available in both models. Type B fan has backward

curved, flat-bladed wheel with non-overloading characteristics. Type F has forward curved, multi-bladed wheel for slow speed operation. Both types are available with direct or V-belt drive. All blades are die-formed for uniformity and welded to plate, to which steel hub has been welded. All wheels are dynamically and statically balanced. Fans can handle hot air and gases up to 600 F. Wheel diameters are from 12 $\frac{1}{4}$ to 14 $\frac{1}{2}$. Volumes up to 324,960 cfm and pressures to 6 $\frac{1}{2}$ s.p. for B model; 277,400 cfm and pressures to 5 s.p. for F.

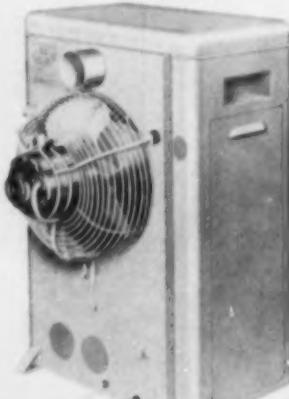
Circle No. 206 on Reader Service Card

Room Heater

Product: "Flexi-Temp" gas-fired floor model room heater.

Manufacturer: Reznor Mfg. Co., Mercer, Pa.

Features: Quiet fan is controlled by temperature-sensitive automatic fan-speed selector which operates independently of burner controls. Fan always operates at low speed during



mild weather. In severe weather, fan comes on at low speed, shifts to high when temperature in heat exchanger hits pre-set point, then drops back to low before going off after burners shut down and heat exchanger begins to cool. All controls are located

in one grouping inside cabinet. Snap-out door on side gives access to control manifold which can be removed as single unit by breaking one union and removing retaining screws. All controls can be removed without breaking any electrical connections. Fan and limit controls in front of heater are reached easily by tilting top louver panel. Cabinet is finished in gray-green baked enamel.

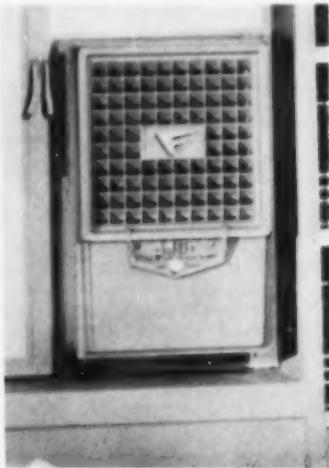
Circle No. 207 on Reader Service Card

Casement Conditioners

Product: "Constellation" $\frac{3}{4}$ -hp and 1-hp casement window air conditioners.

Manufacturer: Fresh'n'd Aire Div. of Cory Corp., Grayslake, Ill.

Features: Models offer eight separate functions for room temperature and air circulation control



via automatic push-buttons. Fully automatic thermostat as standard equipment. V-shaped condenser coils cover full width of face. Two large filters. Face grille easily snaps in and out, permitting selection of desired discharge direction. Sound-proofing material on bulkhead and low-decibel blower wheel helps reduce noise level.

Circle No. 208 on Reader Service Card

Console Conditioners

Product: "Wethermatic" console-type air conditioning units.

Manufacturer: Williamson Co., Cincinnati, Ohio.

Features: Compact styling makes possible installation of 2, 3, or 5-ton units in a single cabinet size. Both space and duct type models available. Provision is made for flange around filter opening when unit is used in duct system, as companion unit for gravity-type furnace. Finished in two-tone green, units



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may be used alone for in-space cooling, with ducts for remote application, or in conjunction with existing furnaces where air distribution blower is not available.

Circle No. 209 on Reader Service Card

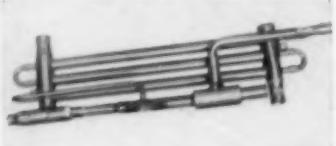
Pressure Stabilizer

Product: "PS" pressure stabilizer.

Manufacturer: Bush Mfg. Co., West Hartford, Conn.

Features: Unit automatically maintains satisfactory head pressure

on air conditioning and refrigeration systems where evaporative or air cooled condensers are required to operate in low ambient temperatures.



Stabilizers also can be applied on systems using cooling towers where water regulating valves are not used. Product incorporates heat transfer

mechanism which transfers heat from hot gas discharge of compressor to sub-cooled liquid leaving condenser when pressure drop across regulating valve is sufficient to cause liquid to pass through heat transfer section. Unit is designed with predetermined pressure drop to insure against liquid refrigerant reheating during warm weather operation.

Circle No. 210 on Reader Service Card



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Circle No. 101 on Reader Service Card

Gas Air Conditioner

Product: "Sun Valley" 3-ton all-year gas air conditioner.

Manufacturer: Servel, Inc., Evansville, Ind.



Features: Single-system unit heats and cools with one fuel. Single-coil, direct-fired unit occupies only 10.4 sq.ft., and is ready for utility connections, ducts, and vents immediately after unpacking. Suitable for average-sized 3-bedroom home, unit has 96,000 Btu/h and delivers maximum of 1,600 cu.ft. per minute on cooling cycle with built-in by-pass open.

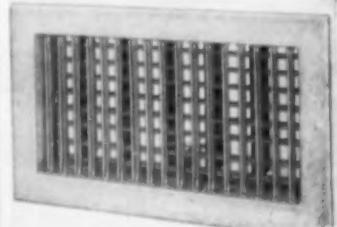
Circle No. 211 on Reader Service Card

Registers And Grilles

Product: "Multi-Trol" commercial-type registers and grilles.

Manufacturer: Air Control Products, Inc., Coopersville, Mich.

Features: Face bars are built with air foil contours to reduce re-



sistance to minimum and make both registers and grilles very quiet at high velocities. Bars are individually adjustable. Rounded corners are

electric welded. Opposed-action louvers are designed so that depth of valve is reduced to minimum. Shallow depth permits use of double deflection registers in standard ducts and stackheads. Valve is easily adjusted with removable key. Both registers (with valve) and grilles (without valve) are available in single or double deflection models with variety of bar arrangements.

Circle No. 212 on Reader Service Card

Window Air Conditioner

Product: Model GAC 771B, 3/4-hp window air conditioner.



Manufacturer: Gibson Refrigerator Co., Greenville, Mich.

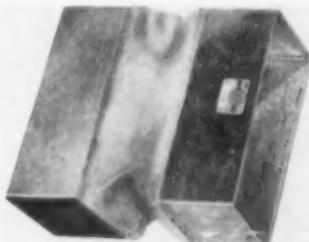
Features: Available with two-wire, two-prong service cord, model

is designed to plug into any 115-volt multiple outlet circuit. Low amperage unit draws less current (7.4) than most small kitchen appliances. Product may be transferred to wherever an outlet is available.

Circle No. 213 on Reader Service Card

Duct Connector

Product: "Residential Silent Duct," a flexible connection for air



conditioning duct in residential systems.

Manufacturer: Elgen Mfg. Corp., Long Island City, N. Y.

Features: Designed for residential construction use, duct uses Johns-Manville asbestos pre-assembled one piece metal-to-material with permanent lock seams, and 26 ga. galvanized steel. Unit is packed in 25, 50, and 100' rolls; and is pulled

out absolutely flat from compact, bench-high dispenser carton. Currently available with asbestos only. Circle No. 214 on Reader Service Card

Air Conditioner

Product: Floor type, 20-ton commercial packaged air conditioner.

Manufacturer: American Blower Corp., Detroit, Mich.

Features: Designed for use with full ducted installations, unit forms self-contained central station type air conditioner in 20-ton cooling capacity range. In addition to 208/220-



volt, 3-phase, 60 cycle arrangement still available for all units of line.

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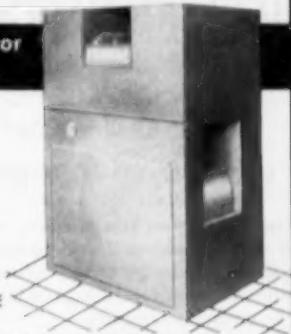
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Circle No. 215 on Reader Service Card

Auto Air Conditioner

Product: Automobile air conditioner which can be assembled and installed by owner in 3 to 4 hours.

Manufacturer: Kool Engineering Corp., Chicago, Ill.



Features: Cooling cabinet with multi-speed blower mounts under

dash or in trunk. Adjustable louvers direct cool air to any part of car. Lowers temperature 30 F and reduces humidity. Fits most 1951-56 trucks, automobiles, station wagons, and taxicabs. Rubber hose connections are used throughout. Cabinet is 8" high, 13" long, and 7½" deep. Compressor and other parts mount under hood. Total weight is 85 lbs.

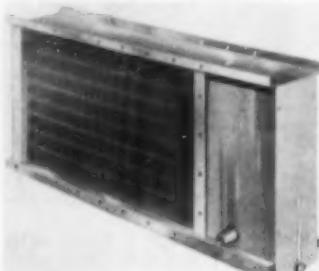
Circle No. 216 on Reader Service Card

stallation is facilitated because of built-in, pitched drain pan; enclosed and insulated compartment for valves; flanges for attaching to duct-work. Coil is available in 2, 3, 4, or 5-ton capacity. Space needed for 2-ton unit is 14½ x 29¾", and 5-ton occupies 21½ x 39¾".

Circle No. 217 on Reader Service Card

Residential Coil

Product: "Recold" residential air conditioning coil.

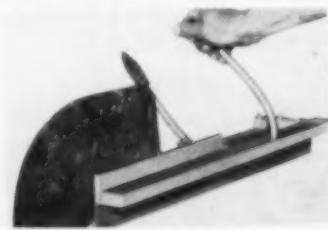


Manufacturer: Refrigeration Engineering, Inc., Los Angeles, Calif.

Features: Unit is designed for connecting into ductwork of new or existing small systems with remote condensing unit or water chiller. In-

Cheek Bender

Product: Cheek bender to speed up production of elbows and other



sheet metal fittings.

Manufacturer: Bett-Marr Mfg. Co., Hopkins, Minn.

Features: Machine has 12" throat and accommodates up to 20-

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Double Filtration!**

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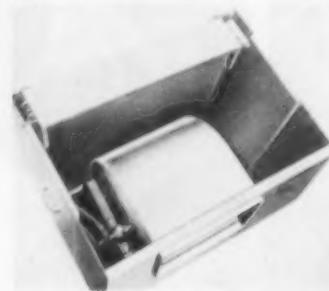


gauge metal. Shipping weight is 41 lbs. Changeable strips make tool adjustable for bends in varying widths. Unit comes equipped with strips for 1/4 and 5/8" bends. Strips for 3/8 and 1/2" bends also are available. Easy to install, bender comes with 2 lag bolts, ready to set up on bench.

Circle No. 218 on Reader Service Card

Air-Cooled Condenser

Product: Air-cooled condenser to eliminate need for water in packaged air conditioner installations.



Manufacturer: United States Air Conditioning Corp., Minneapolis, Minn.

Features: Available in 2, 3, 5,

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ISOMODE® PAD

Just cut what you need for the weight of the air conditioner, and install under the unit. One square inch for each fifty pounds of weight does it. ISOMODE PADS absorb vibration, cut down noise on any type of floor. Made of DuPont neoprene, they resist oil, last for years. No cementing needed . . . units stay put. ISOMODE PADS are most economical when bought in standard packages of ten 18" x 18" sheets. Write for prices and Information Bulletin No. 415.

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and 7 1/2-ton capacities, equipment is ideal for commercial installations where water for refrigerant condensing is scarce or costly or waste water disposal is problem. Units comprise motor, blower, and condenser coil, housed in weather-proof cabinet, and are designed for installation at point remote from packaged air conditioner, indoors or out, wherever continuous supply of outside air can be provided. Installation requires only connection of two copper lines to air conditioning unit—one to carry hot refrigerant gas from compressor and other to return condensed liquid to receiver. Unit is 39" wide x 27" high x 28" deep, in 2-ton model and 70 x 50 x 30" in 7 1/2-ton unit. Electrical needs are single-phase, 230 volts for 2, 3, and 5-ton models and 3-phase, 220-volt for 7 1/2-ton equipment. Also available in 5-ton model is 3-phase unit.

Circle No. 219 on Reader Service Card

Cooling Towers

Product: "Flow-Mizer" cooling towers.

Manufacturer: Acme Industries, Inc., Jackson, Mich.

Features: Available in capacities from 15 through 100 tons, towers are distinguished by new design "Acme-



Pak" which consists of series of vertically mounted steel plates that create ideal conditions for water evaporation and fast, efficient heat dissipation. Centrifugal blowers provide constant-velocity air flow with ample capacity for use with duct-work. Blower section has outlets set at 45-degree angle for discharge in any direction. Sump located outside tower. Full-width access panels and slide-out drift eliminators make nozzle check easy. Flush-type louvered air inlets eliminate splash-water escape. All towers are hot-dip galvanized after fabrication so that they won't rust, rot, or deteriorate.

Circle No. 220 on Reader Service Card

MB manufacturing company

A DIVISION OF TEXTRON AMERICAN, INC.
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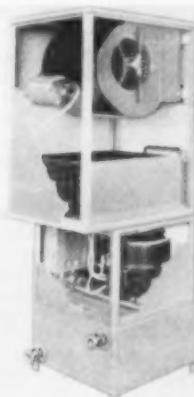
Packaged Water Chillers

Product: Self-contained water chillers for small commercial, indus-

trial, and residential applications.

Manufacturer: Drayer-Hanson, Inc., Los Angeles, Calif.

Features: In 2 or 3-ton sizes, models are available with either water or air-cooled condensers. Both



models utilize thermal expansion valve, refrigerant dryer and strainer, liquid line sight glass, and Tecumseh hermetic compressor charged with Freon-22. Complete electrical wiring is included. Controls consist of freezestat, compressor motor contactor, water circulating pump, hi-low pressure control, and cooling switch. All-copper chilled water coil circuit, completely drainable to prevent shut down. Air-cooled models require no condenser water. Double width, double inlet, 12" blower is resilient mounted. Discharge arrangement is top vertical. Water-cooled units will take city or cooling tower water. All components are mounted in furniture steel cabinet.

Circle No. 221 on Reader Service Card

Built-In Air Conditioner

Product: "Imperial" built-in room air conditioner.

Manufacturer: Airtemp Div., Chrysler Corp., Dayton, Ohio.



Features: Unit has little inside-room projection and is completely flush on outside. Model conforms with all city codes on outside projection and will not alter outward

appearance of building. Conditioner can be built into wall or installed in 28" window or larger. Control switches are on side of cabinet. In neutral tones of gray and beige, units are available in $\frac{1}{2}$, $\frac{3}{4}$ and 1-hp capacities. Cooling thermostat is standard equipment.

Circle No. 222 on Reader Service Card

Room Air Conditioner

Product: "Hi-Ef" $\frac{1}{2}$ and $\frac{3}{4}$ -hp room air conditioners that require no more electrical current than ordinary flat-iron.

Manufacturer: York Corp., York, Pa.

Features: Single dial controls fan motor, cooling, and dehumidifying. Separate thermostat control may be set to any point to switch cooling system off automatically when room is sufficiently cooled. Outside air control dial permits regulating amount of outside air brought into room. All controls are located on front of unit and are protected by attractive cover to discourage tampering. Units can be mounted flush with drapes inside room, or flush with building outside. Air grille eliminates draft; Dehumidified air



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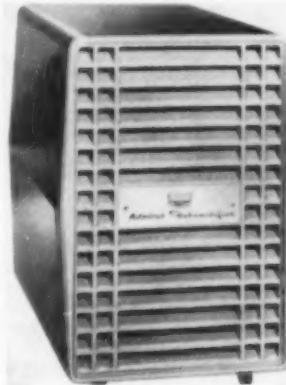
can be directed to all parts of room. Entire cooling system sealed. Circle No. 223 on Reader Service Card

Portable Dehumidifier

Product: Portable dehumidifier mounted on 4 swivel casters.

Manufacturer: Admiral Corp., Chicago, Ill.

Features: Unit can be plugged into any standard 10-115 volts a.c. outlet for immediate operation. Mod-



el controls moisture in closed areas up to 10,000 cu.ft., and is capable of removing 24 pints of water from air every 24 hours. Moisture is removed by process of cooling series of coils to below room temperature. Air drawn into bottom of unit by fan passes over coils. Moisture condenses and drops into removable rust-proof container. Drainage can be made fully automatic by connecting hose to drain. Dehumidifier is 13½" wide, 20¼" high, and is finished in gray-beige enamel. Hermetically-sealed 1/6-hp compressor doesn't require oiling.

Circle No. 224 on Reader Service Card

Furnace Line

Product: Oil and gas-fired heating equipment.

Manufacturer: Gibson Refrigerator Co., Greenville, Mich.

Features: Compact high boy and basement units are available in 5 sizes from 70 to 200,000 Btu, gas-fired, and from 80 to 125,000 Btu in 3 sizes of oil-fired equipment. Counterflow models are produced in 70 to 105,000 Btu input, gas-fired, and 80 to 125,000 Btu in oil-fired models, as well as 80, 100, and 125,000 Btu units, oil-fired suspended.

Circle No. 225 on Reader Service Card

Oil-Fired Furnace

Product: Fully automatic oil-fired winter air conditioner.

Manufacturer: Janitrol Heating & Air Conditioning Div., Surface Combustion Corp., Columbus, Ohio.

Features: Models are in 3 sizes: 85,000, 102,000, and 135,000 Btuh.



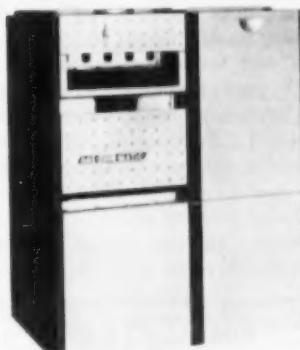
output at bonnet. Units easily may be converted for gas fuel. Combustion chamber and heat radiator feature 14-gauge, all-welded steel construction for fast, efficient heat transfer. Protection from leakage is assured by eliminating bolted and gasketed joints. Extra large radiator has rounded corners for easy cleaning. Special refractory lining effec-

tively muffles combustion noises and is shaped to uniformly diffuse heat radiating from zone of ignition. High-pressure burner provides thorough atomization and clean, efficient burning. Blower and motor on live rubber cushions provide quiet, vibration-free operation.

Circle No. 226 on Reader Service Card

Gas And Oil Furnaces

Product: Gas (shown) and oil fired warm air furnaces.



Manufacturer: Williams Div., Eureka Williams Corp., Bloomington, Ill.

Features: Both units have heavy-gauge heat exchangers and oversized blowers. Completely sealed, gas Model LG-112 has heat exchanger which provides higher Btu rating in smaller space. Controls are reached easily through removable front panel. Available in models with input ratings from 67,000 to 180,000 Btuh. Oil Model LBO-90 is sealed in steel from top to bottom preventing dust, dirt, and odors from entering system. Levelizers eliminate building concrete base, grouting and sealing, thereby lowering installation cost. Available in models with bonnet ratings from 70,000 to 130,000 Btuh.

Circle No. 227 on Reader Service Card

PROTO ACQUIRES TAC RATCHET WRENCH LINE

Plumb Tool Co. has acquired certain assets of the Tubing Appliance Co., Inc., including essential machinery, tooling, patents and inventories of "Tac" ratchet wrenches. All physical assets involved have been moved to the Proto plant of the company in Los Angeles, where manufacture of the wrenches as "Proto-Tac" tools has already been started.

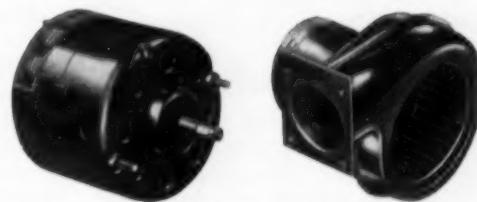
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CONDENSATION . . .

Continued from page 79

expensive to install and operate than either gravity or forced circulation methods.

Figures 3 and 4 illustrate corrective measures which can be made to eliminate condensation by means of air circulation. Note the air passageways which provide for downward circulation of air by gravity at the back of the refrigerated cabinet and underneath and out at the front. If forced circulation should be necessary, the fan can be placed at point "A" as shown.

Three precautions should be observed, however, in providing space for this air circulation. First, a continuous baffle should be provided along the top of a refrigerated cabinet so as to prevent articles or material from falling down and accumulating behind the cabinet with the probability of blocking the air space. Second, the lower front of the cabinet (along the toe board at the floor) should not be completely open but should be baffled or so designed as to prevent articles rolling under the cabinet and especially to prevent water from floor mopping and cleaning from being thrown under the cabinet. Moisture splashed during floor cleaning can be even more troublesome under cabinets than dampness from condensation.

Keep Louvres Clear

Finally, any air flow slits, louvres, or passages provided by the manufacturer of the equipment, or any air passages provided at the lower front, ends or upper back of display cases at the time of installation of the equipment, should be kept free of any obstructions to the air flow. Sometimes packages, store stock, or material is so placed as to block these air flow passages. Store managers should continually check for this possibility and instruct their staff to keep these passages free and unobstructed.

An attempt to seal the back and bottom of refrigerated cabinets against the wall and floor might be considered as a remedy, but it

would likely be of doubtful satisfaction. It would be practically impossible to seal a cabinet (especially a whole line of refrigerated display cases or fountain equipment) against a wall or floor so that absolutely no leakage of moisture could occur. During high humidity weather the wall or floor itself might leak water vapor (even with a perfect seal along the edges) which might later condense within the dead air space between the cabinet and the wall or floor. Thus most attempts to seal out air and water vapor just aggravate the condensation situation.

To prevent condensation in the wall of a building or refrigerated storage enclosure, a vapor barrier is used to prevent moisture from passing into the walls. This vapor barrier must be placed on the warm side of the wall. Typical ma-

instance, the refrigeration tubing between the cabinet and remotely located compressor unit may operate at low enough temperature to cause sweating and dripping along the line. This trouble can be decreased by the use of the heat exchange principle at the time of installation of the equipment. This feature often is furnished as standard equipment with commercial display cases and fountain equipment.

In addition, providing for insulation of the refrigerant lines for a distance of 20 to 30 feet from the cabinet will help to avoid sweating of these lines. Locating the refrigerant lines in a floor trench with drainage provision for collection and removal of drip has some advantages. However, a damp or wet trench can cause corrosion of the piping and conduit running in the trench, as well as lead to unsanitary conditions.

Needs Special Attention

Still other condensation problems can exist and often are more difficult to avoid or remedy. For example, condensation or frost on the refrigerated coiling of the fixture requires special attention of the owner or special design provisions by the manufacturer. Sweat between multiple layers of glass doors or side panels of display cases usually calls for major cabinet repair procedure in order to remove the glass, clean it, renew the drying material that has become saturated with moisture, and reseal the glass back in place properly.

Sweating of outer cabinet panel surfaces or at panel joints may indicate poor seals at panel joints. This can result in moisture migration and penetration into cabinet insulation sufficient to soak through it, with possible deterioration and loss of insulating value. This latter trouble is more likely to occur in cabinets of older design (of about 20 years ago).

In the case of particularly troublesome conditions, however, the counsel of the commercial refrigeration dealer or serviceman can be very helpful. He usually will be able to recognize the cause of the trouble, and to suggest and carry out a suitable remedy.



terials used for vapor barriers consist of foils, sheet metals, impervious films, and laminated paper impregnated with asphalt.

Moisture may condense on chilled glass windows at certain moisture contents of the air. Condensation may be reduced or eliminated by providing circulation of air around the window, possible by a fan or by providing a greater exchange of air in the room. In the case of double windows, the space between the windows should be vented to the outside, or warmed by heaters or forced warm air.

Other condensation problems in connection with refrigeration equipment may also require attention and remedial measures. For

ONE HOUSE . . .

Continued from page 111

heating emphasis where desired, although this needed some balancing by the simple expedient of using a furnace of 150,000 Btu capacity on one circuit while using a unit of only 125,000 Btu capacity on the other.

Next, Black laid his plans so that heat would enter the rooms at floor level with high-wall returns, while cool air would enter through the high-wall grilles with floor-level returns. This meant, of course, that although the same ducts would be used for both heating and cooling, the direction of the air flow would need to be reversed from summer to winter.

Air Flow Reversed

To accomplish the reversed flow, the designs provided for each furnace and its blower to be connected straight-line into the respective duct systems, with by-pass ducts around each furnace to be connected to the cooler units with their separate blowers facing in the opposite direction. Automatic dampers were placed in the ducts at the intake and outlet ends of each heating and each cooling unit so that no part of the air flow would move through a unit which is not in use.

Averaging Thermostat Used

Thermostatic control for the heating is accomplished with two sets of Minneapolis-Honeywell "Modulflow" instruments which regulate the furnaces through the combination of an inside and outside thermostat plus an additional averaging thermostat located in another portion of the house. The main thermostats are located in the dining room and sun room on the first floor. The averaging thermostats are located in the living room and the second floor hall. The cooling is controlled by one thermostat in each of the house's two zones—one in the dining room, the other in the sun room.

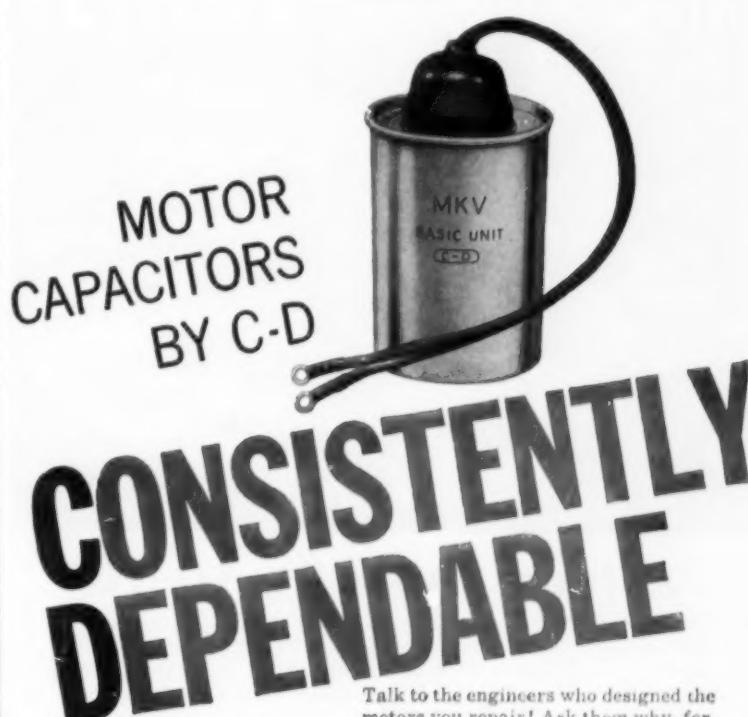
Each individual duct run is also subject to a manual control damper, adjusted to provide a permanent housewide balancing of both the hot and cold air flows.

Although well insulated throughout, the house has one room that presents a special problem for both heating and cooling. This is the sun room, which overhangs an open area of the basement and which has a continuous expanse of windows with southern exposure in its long exterior wall.

This sun room, it was realized in advance, would need an oversize heat source in winter during hours when no solar heat would come through the windows, but unless special provisions were made for

control this would tend to make the room uncomfortably warm whenever there were sudden gains from sunshine. Likewise, the room needed a heavy capacity of cooled air in summer during hours when sunlight flooded in through the windows, but this required fast-acting controls to let the room have a maximum supply when needed, and to reduce it with any diminishment of the light.

To meet that problem, Black had thermostatic registers installed at the baseboard level in the sun



Talk to the engineers who designed the motors you repair! Ask them why, for 45 years, C-D capacitors have been "the standard" for all the really heavy load motor starting jobs. They'll tell you: "C-D means Consistently Dependable." No wonder there are more C-D capacitors in use today than any other make! Always insist on C-D capacitors—there's just the right type for every motor made. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book. Dept. CR 75 Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.



CONSISTENTLY DEPENDABLE **CORNELL-DUBILIER CAPACITORS**

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; SANFORD AND PUQUAY SPRINGS, N. C.; SUBSIDIARY: THE RADIANT CORPORATION, CLEVELAND, O.
THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 110 on Reader Service Card

room. These serve effectively to control the heat level in winter at the point of supply; but they also have proved adequate to control the coolness in summer by increasing or decreasing the volume of return air, which indirectly produces a corresponding response in the volume of cool air supplied.

After several months of occupancy under both summer and winter conditions, Dr. Condry reports complete satisfaction with the "double system" arrangement, and has especially noticed that no

conflict has arisen between the two "competing systems such as might give an undesired imbalance of heating or cooling, even though no doors are used to separate one zone from the other.

As both condenser units are water-cooled, the disposal of the waste water is solved by piping it into a sewer. However, the doctor and his wife are now contemplating the possibility either of using this outflow for watering the large lawn, or of building a swimming pool to receive it.



... from FACTORY TO YOU

Flexon Vibra-Sorbers now come sealed in air-tight polyethylene bags for protection both inside and out—a new high standard of cleanliness. To establish this cleanliness Vibra-Sorbers are bathed in solvents, pickled, multiple washed and dried in infra-red dryers. Regular inspection insures the highest standards of cleanliness. Thus, from factory to installation, they are clean—uncontaminated by foreign matter—nothing injurious can be introduced into the system.

An attractive new carton permits easy storage and immediate identification of size. Installation is speeded up, too, because it is no longer necessary to remove end seals.

Only genuine Vibra-Sorbers are U.L. listed in sizes 3/16 through 1 1/2" for both high and low side service. Only genuine Vibra-Sorbers bear the name Flexon—look for it on the package. Stocks maintained in all principal cities to assure immediate delivery. For full details write for Bulletin 139.

**FLEXON®
QUALITY**
Proven in service and
backed by over 54 years
manufacturing experience

Flexonics Corporation
CHICAGO METAL HOSE
DIVISION

1321 S. THIRD AVENUE, MAYWOOD, ILLINOIS

Formerly CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

Circle No. 111 on Reader Service Card

CONCEALED COOLING TOWER



"HIDEAWAY" LOCATION of equipment in residential air conditioning applications is made possible by use of forced draft cooling towers. Shown here is a Halstead & Mitchell tower placed under the front steps of a prize-winning home developed by Pennsylvania architect J. Kenneth Myers. Only exterior evidence of the cooling tower, mounted in a small room beneath the stoop, is the two grilles in the porch walls providing for air intake and outlet.

DEALER MANUAL ISSUED BY MUELLER CLIMATROL

Features and advantages of Mueller Climatrol heating equipment are outlined in the new features presentation manual available by Mueller dealers. The manual, designed for closing the sale to the customer, is a 36-page, loose-leaf booklet, "Make Yourself Comfortable," with sales points printed in extra-large type. Features are illustrated. The booklet is designed to be read through by the salesman while prospects watch and listen.

The cover is an easel-type 12 1/2" x 14 1/2" leatherette binder which can be set upon a table to support the booklet. The manual includes a 32-page instruction and fact outline for the dealer's use. Also supplied with each presentation are 25 miniature versions of the "Make Yourself Comfortable" booklet which can be left with the prospect for further study at his convenience.

V-18

BORG-WARNER, YORK MERGER PROPOSED

Directors of Borg-Warner Corp. and York Corp., in specially called meetings, have unanimously approved the affiliation of the two companies.

Recommendations for the affiliation were submitted to the two boards of directors by Roy C. Ingersoll, chairman of the board and president of Borg-Warner, and Stewart E. Lauer, president of York. York shareholders will also be asked to approve the plan of reorganization at a special meeting to be held in June.

When the plan becomes effective, York will be operated as a separate division of Borg-Warner, and it is expected that the present policies, management and personnel of York will be continued.

York is active in residential air conditioning as well as in the larger applications of air conditioning and refrigeration equipment for commercial and industrial uses. Borg-Warner's Airline division produces heating equipment for residential use.

Officials of both companies agreed that distribution and expansion of product lines would be greatly enhanced by the affiliation. Officials of Norge Div., in a separate statement, emphasized that the merger would not affect the distributor organizations of either York or Norge. These will continue to be operated independently.

TYphoon Holds Schools FOR SALES, SERVICE

Typhoon Air Conditioning recently sponsored a number of schools on service, engineering and sales to help its distributors increase their profits and to aid servicemen in solving field problems more easily.

The schools covered installation of air conditioning equipment, service and operation of expansion valves and strainers, electrical hook-ups, trouble shooting, the minimizing of service by proper selection and application, and the working benefits of Typhoon's five-year protection plan.

Schools were held in Boston, Kansas City, Los Angeles, Wil-

mington, Washington, D.C., Brooklyn, N.Y. and Elizabeth, N.J. Special heat pump schools were held at Perfection Industries in Cleveland and at the Floridan Hotel in Tampa, under the direction of the Typhoon Heat Pump Co. A one-day sales and service school was staged in Detroit, and a residential cooling meeting in Cleveland.

FROSTRODE MOVES TO NEW PONTIAC PLANT

The Frostrode Div. of Warren Alloy has completed the transfer of its manufacturing machinery to its new and expanded quarters at 421 Ferry St., Pontiac, Mich.

The new plant has three complete production lines for the construction of cooling units used in such widely diversified fields as coolant chilling for machine tools, solvent stabilizing in dry cleaning

plants and air conditioning in homes.

The Frostrode Div. is managed by John Riss. Sales manager is Bob Stewart, formerly with J. Geo. Fisher & Sons and J. M. Obere, Inc., air conditioning and refrigeration wholesaling firms.

AMERICAN-MARIETTA TO ACQUIRE PRESSTITE

Directors of American-Marietta Co. and Presstite Engineering Co. of St. Louis have approved an agreement providing for the sale of the entire assets and business of Presstite to American-Marietta.

Presstite Engineering is a manufacturer of more than 400 specialized types of sealing, insulation and adhesive products used principally in the aircraft, automotive, refrigeration and air conditioning industries.

Calendar of Industry Conventions

May 7-9	Air-Conditioning and Refrigeration Institute	The Greenbrier Hot Springs, Va. The Homestead
May 7-11	National Restaurant Assn. (Convention-Exposition)	Chicago, Ill. Navy Pier
May 15-18	Mechanical Contractors Assn. (Heating, Piping & Air Cond. Contractors Natl. Assn.)	Louisville, Ky. Kentucky Hotel
May 22-25	Natl. Warm Air Htg. & Air Conditioning Assn. (Directors, Tech. Conference)	Chicago, Ill. Edgewater Beach Hotel
June 3-6	American Society of Refrigerating Engineers	Cincinnati, Ohio
June 4-7	Edison Electric Institute	Atlantic City, N.J.
June 11-15	21st National Oil Heat and Air Conditioning Exposition	New York City Coliseum
June 17-21	American Society of Mechanical Engineers (Semi-Annual Meeting)	Cleveland, Ohio Hotel Statler
June 18-20	American Society of Heating and Air Conditioning Engineers (Semi-Annual Meeting)	Washington, D. C.
June 25-29	American Institute of Electrical Engineers	San Francisco, Calif.
Oct. 22-23	Air Conditioning and Refrigeration Institute (Directors Meeting)	Point Clear, Ala. Grand Hotel
Oct. 24-26	Air Conditioning and Refrigeration Institute (Product Sections)	New Orleans, La.
Oct. 24-27	Air Conditioning and Refrigeration Wholesalers (Annual Meeting)	New Orleans, La. Jung Hotel
Nov. 15-18	Refrigeration Service Engineers Society (Annual Meeting)	Kansas City, Mo.
Dec. 3-4	National Commercial Refrigerator Sales Assn. (Annual Meeting)	San Francisco, Calif. Mark Hopkins Hotel
Feb. 25- March 1, 1957	International Heating and Air Conditioning Exposition	Chicago, Ill. Intl. Amphitheatre
Nov. 18-21, 1957	10th Exposition of Air Conditioning & Refn. Industry	Chicago, Ill. Navy Pier

The Commercial Refrigeration & Air Conditioning

APPLICATIONS MANUAL

Tobacco and Candy Warehouse Illustrates Problems in Storing Dissimilar Products

by Arthur H. Farr

TH E candy and tobacco wholesale house has need for all of the components of air conditioning—cooling, dehumidifying, heating and humidifying. The wholesaler must store—for varying periods—two perishable products which are quite different in their temperature and humidity requirements.

Packaged candy and chocolates are stored at temperatures between 55 and 65 F. Care must be exercised to maintain a uniform temperature in the storage room and prevent temperature from falling below 50 F. Below 50 F, the butter fats in the candy come to the surface producing a light brown, off-color appearance which is undesirable from a sales standpoint.

Case Temperatures Vary

Boxed cigars, smoking tobacco and chewing tobacco require storage conditions of 65 F to 75 F temperature with 74% relative humidity. Control of temperature and relative humidity is necessary to preserve the texture, flavor and freshness of the tobacco.

A typical example of the above problem of storing dissimilar products was met in the installation of two storage rooms at the new warehouse of a Cleveland tobacco and candy wholesaler. As indicated in Fig. 1, the chocolate storage cooler was 20 x 20', and the adjacent tobacco storage room was 20 x 15'. Both rooms have a 12' ceiling height.

The problem was to maintain temperature in the chocolate room (relative humidity not critical), and to maintain humidity in the tobacco room, with temperature being of secondary importance. Calculations indicated however, that heat would have to be added to the tobacco room during the winter months.

A 2-ton low side unit with plenum

chamber was suspended from the ceiling of the chocolate cooler and temperature is maintained at 55 F by means of a wall thermostat. Since the coolers were located in a remote area of the large general warehouse area, it was decided to use an air-cooled high side unit and eliminate the use of water as a condensing medium.

As previously stated, it would be necessary to add heat to the tobacco room during the winter, so the 2-hp air-cooled condensing unit was mounted on a platform suspended from the ceiling of the tobacco cooler. A duct was run from the discharge outlet of the air-cooled unit (centrifugal blower type) to the outside to dissipate the condensing heat during the summer months.

A splitter was installed in the duct so that—during the winter months—the heat would be directed into the tobacco room and thus, reduce the cost of heating this space. Thus—in effect—this system operates as a heat pump in the cold months.

The tobacco room had a volume

of 3600 cu. ft. to be maintained at 74% r.h. At 70 F and 74% r.h. the room air would have to contain 77 grains of moisture per pound of air. Winter infiltration into the cooler would come from the general warehouse area where air conditions would be approximately 65 F and 20% r.h. (absolute humidity 18 grains per pound). If we assume one air change per hour in the tobacco room, we must add 59 grains of moisture to 13.3 cu. ft./lb. or 270 lbs. of air ($59 \times 270 = 15,930$ grains).

Humidifier Unit Added

Seven thousand grains equals one pound of water, so our humidifier load is 2.3 lbs. of water per hour. To handle this load a self-contained humidifier with a capacity of 3 lbs. per hour while circulating 80 cfm was installed with a small water line feeding the float makeup valve at the bottom of the unit. A line voltage humidistat controls the operation of the humidifier to maintain 74% r.h.

Electric panel heat—controlled by a thermostat set at the bottom of the permissible room temperature range—serves to maintain temperature in the tobacco room during periods when the heat dissipation from the air-cooled unit is not sufficient to maintain the minimum room temperature.

NEW PRITCHARD REP

The Ernest L. Graves Co. of Tulsa, has been appointed sales representative in Oklahoma by J. F. Pritchard and Co. of California, Kansas City, Mo.

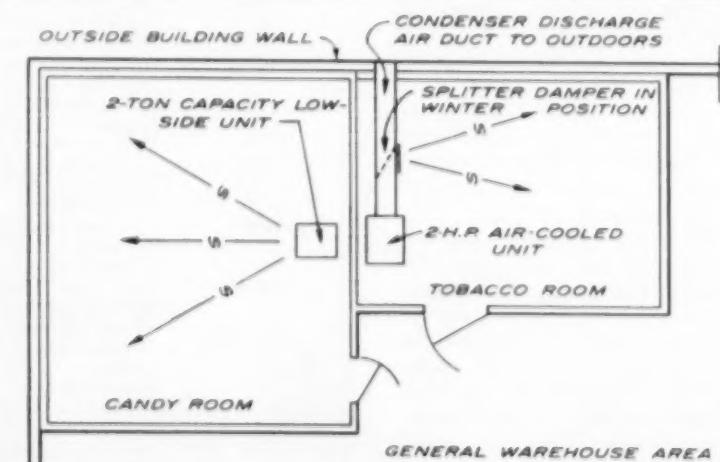
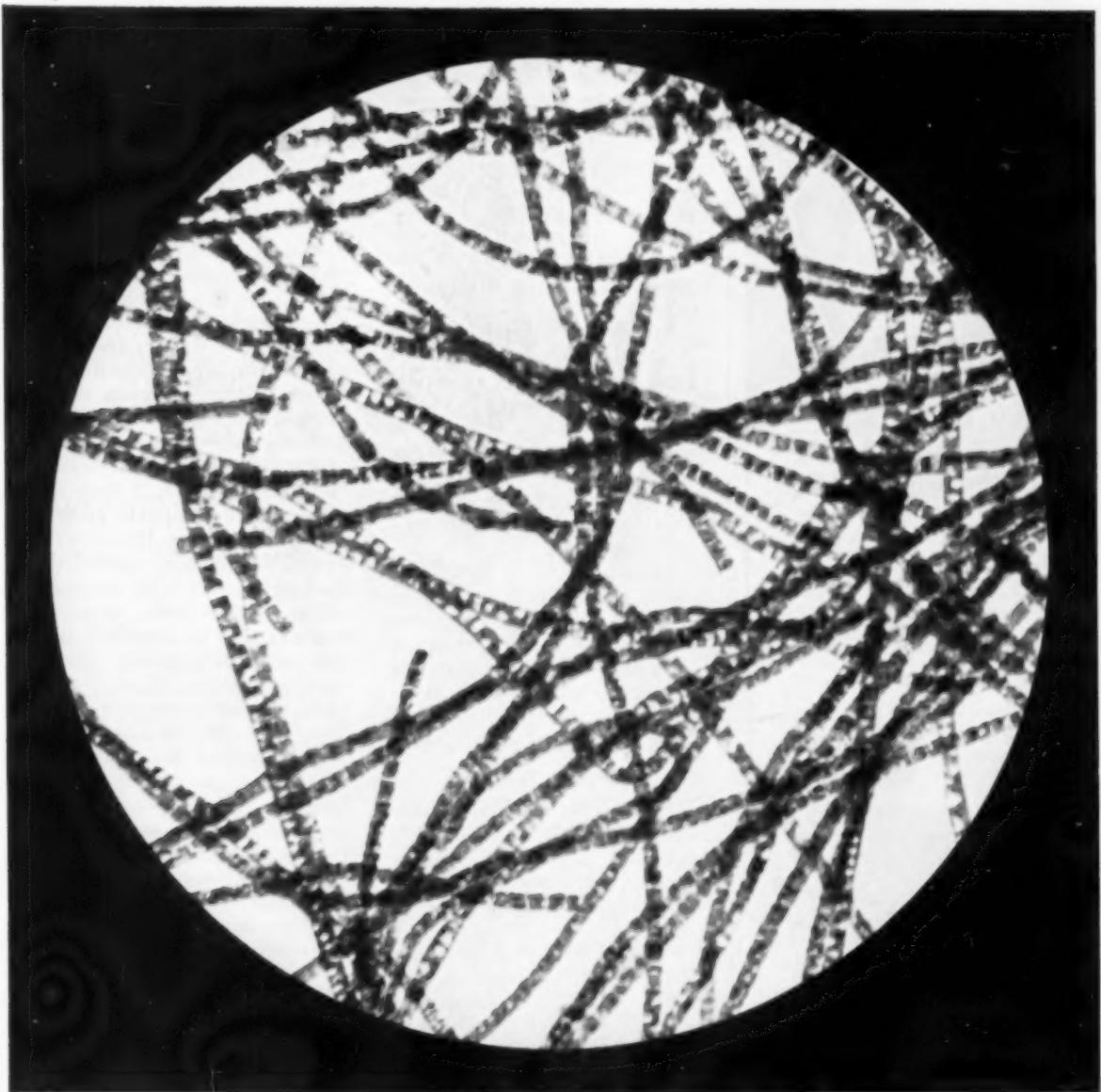


Fig. 1—Layout of tobacco-candy warehouse storage rooms.



Algae such as these are no problem in cooling towers treated with "Virginia's" new algae-cides

Growth of algae occurs in every untreated reservoir of water exposed to sunlight. It is one of the common causes for loss of heat transfer efficiency. Of some 30,000 species of algae known to exist, one of the more common types found in cooling tower systems appears above in photomicrograph. You can control these and other algal growths with two new "Virginia" Algae-Cides.

Algae-Cide No. 1 is an organic copper compound many times more active than ordinary copper salts. Algae-Cide No. 2 is toxic also to bacteria; it is recommended for slime elimination, for mixed slime-algae infestations, and for copper resistant algae.

"Virginia" Algae-Cides No. 1 and No. 2 give you maximum algae control at low cost. Order from your wholesaler.

today or write to Refrigeration Division,
VIRGINIA SMELTING CO., 248 Jefferson St.,
West Norfolk, Va.



ESOTOG • KINETIC CHEMICALS • TREON REFRIGERANTS • V-METHYL
CAN-O-GAS • PERMAGUM • PRESSITE TAPE • KRISWRAP
SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS

Available in Canada and many other countries

"Virginia" Water Treatment Products include
Algae-Cides No. 1 and
No. 2; Scale Remover;
Scale Inhibitor; Ice Machine Cleaner.



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and NO WATER REQUIRED

SIMPLE AUTOMATIC CONTROL SYSTEM FOR WINTER OPERATION

WITT offers a simple, low price method of keeping head pressure sufficiently high in extremely low temperatures. This applies even where a multiplicity of condensing units are connected to one condenser.

Where water supply is fixed or limited, drainage facilities inadequate, or water corrodes water cooled condensers, the sensible answer to your air conditioning or refrigeration condensing problem is a WITT AIR COOLED CONDENSER.

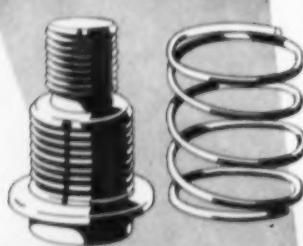
Some units are applicable for indoor or outdoor installation. Available in two to 20 ton capacities or multiples thereof.

Write for information

A. H. WITT COMPANY
940 North Sycamore Av.
Los Angeles 38, Calif.

ONE OF A
FINE LINE
OF

WITT Coils



Specify PROSTACO

for Compressor replacement PARTS

Whatever you want, whatever you need in precision-made replacement parts for all models of compressors, Production Stamping is your best source.

Above we show just one of several hundred. This is a Bellows Seal designed for Coldspot units. Utmost care was taken to select performance materials of seal ring, bellows and spring, and then it was precision made to give a lapped, airtight fit.

Write today for our latest catalog.

Production Stamping Co.

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MERCHANDISING . . .

Continued from page 109

manufacturer. Wrap it all up in an attractive folder with the prospect's name on the outside. Don't put the price in your proposal. Let your salesman talk price at the proper time. Provide space in your proposal form to write in price and terms later.

Samples are wonderful tools for closing the sale. Perhaps you are going to change the air outlet grilles in the home when you do the job. Provide a sample grille for your salesman to take with him on the close.

A book can be written on closing a residential sale. Here are just a few pointers.

Never talk to Mr. or Mrs. Homeowner alone. Get them both together. If they are not both there, ready to listen, make a new date to come back. The penalty of not observing this rule is almost always an "I'll talk it over with my wife" reply when you ask for the order.

The Show's the Thing

You have an appointment with Mr. and Mrs. Homeowner. They expect to spend time with you, to listen to your story. They are interested. Here is a real chance to sell.

Put on a show. They want your presentation to be interesting. Use all the visuals and demonstrations your manufacturer provides.

Assume that the prospect knows nothing about air conditioning. Explain everything as you go along. Words like condenser, evaporator, expansion valve are meaningless and confusing to the prospect. Explain everything in terms the prospect understands. I always sell with a pad and pencil, a rough sketch explains better than words. A sales book full of good pictures is even better.

It has been proven that 24 hours after a sales presentation the prospect remembers only 5% of what he hears and 10% of what he sees. But if he both sees and hears it, he will remember 20%. Demonstrate and use visuals.

Talk benefits not features. Maybe your machine has the largest filter area, but if you don't tell the

prospect why more filter area is good for him and what benefit he will get from it, his attitude will be "So what"?

You never know what benefit will sell the job, so cover them all and watch the prospect's reaction. Some housewives are more interested in keeping their homes spotless than others, so year-round air filtering and the impression of cleanliness ring a bell. A family that's had a fire in the past is impressed by the safety features of your equipment. Whenever the prospect shows particular interest in a benefit, hit that one hard.

Cover every feature and every benefit, even if it's not an exclusive with your product. If there is a competitor on the job he probably skipped something. If you hit that point, the prospect assumes that you have it and your competitor doesn't. This is hard to do consistently. The more times you make the presentation, the more you will tend to leave things out. Use visuals, then organize your story and keep you on the beam.

When you talk to a man and wife about their home, the things they are interested in are comfort, health, appearance, safety, cleanliness, and "is it automatic?" You have every one of these things—sell them!

When do you ask for the order? You never know—so ask early and often. If the answer is no, go right back to your benefits story—then ask again. If you have finished your story, start all over again and re-hit the points they showed the most interest in the first time.

Break the Cost Gently

Inevitably, that nasty question "How much?" will rear its ugly little head. Don't blurt out "\$1500," and then have to pick the husband up off the floor to revive him. If possible, have more than one deal to offer, and always quote time payments first. Counter the price question with a question of your own like, "Could you comfortably pay \$500 now or would \$350 be better?" He may say \$500, when you would have settled for \$200 if you had to. Frame your questions so that there is a choice of answers, any one of which will be OK with you. Don't

ask questions that the prospect can answer with a "No".

Now do some fast mental calculation—\$500 down on a \$1500 job leaves a balance of \$1000. On 24-month payments that's about \$45 a month. Ask another question, "How would \$45 a month suit you, Mr. Homeowner, or would you prefer to pay more?"

Keep them thinking that they are writing their own ticket. Don't quote your rock bottom 10% and 36-month deal first. Keep that for later dickering. Chances are you won't need it anyway. If you do, make it come hard—a real special deal. Ask to use the phone, call the boss, explain the situation to him, and ask him for a special arrangement. Then go back and offer it.

Push Hard for the Close

Every once in a while, someone will interrupt this routine and say, "Oh, we don't want time payments, we will pay cash." In this case, just pick yourself up off the floor, and get out the contract—you've made a sale!

Push hard for a close now—to-night. Stick with them as long as they will let you. Talk about cows, children, cards, anything they want to talk about, but always steer it back to air conditioning their home *now*. And don't leave without the order until you are positive you can't get it. Let them talk, but steer the conversation to your job. Chances are they will sell themselves.

Many men in this type of selling feel that it is strictly a one-shot proposition. I disagree. If you miss tonight, make a date to come back. Try again and again. A good percentage of your misses can be sold later, if the lead was any good in the first place.

One last word on closing—get the kids into the act if you can. They will generally help you to many a sale, and they are the most important thing in Mr. and Mrs. Prospect's life.

The contract is signed, credit is approved, you are ready to install. Make this installation sell another is the order of the day. By the way, even if you are not scheduled to install the job for a week or two it's often a good idea to deliver some equipment to the job right

away. Word gets around, and a competitor may try to take the deal away from you with a cut price. In most states a contract is very difficult to cancel if material has been delivered to the job.

Now let's make a selling installation. Above all do neat, quality work. Make as little mess as possible. Disturb the family as little as possible. Train your installers to avoid profanity in the home, and to be courteous and pleasant.

No matter how clean and neat the home was when your crew arrived, leave it cleaner and neater. *This is a must!*

Park the truck where the neighbors can see it, put up job signs, canvass every home in the neighborhood while the job is in process. Don't leave little things undone, finish the job quickly, clean up and get out.

Installation crews are a wonderful source of good leads if you make it worth their while. A small commission paid to your crew on the jobs sold from their leads generally works wonders.

Nothing, but nothing, sells bet-

DETECT LEAKS

*
SOLDER

*
HEAT



PREST-O-LITE

Trade-Mark

REFRIGERATION AND AIR CONDITIONING OUTFIT

This air-acetylene outfit easily handles all your soldering, heating, and leak detecting work. No liquid fuel to spill. No pumping, priming, or wasted time. The three open flame stems and halide gas leak detector unit are instantly interchangeable on a common handle. One handy kit with a flame for every job. See your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.

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POSITIVE SEALING INDICATORS

"... eliminates many unnecessary trouble checks for me — one glance tells the story!"

Illustrated: 100 Series, 1/4" or 3/8" female by male flare.

- Pyrex glass, double pressure sealed at sides and ends.
- Provides instant visible check of refrigerant condition.
- Spring-loaded gaskets insure positive seal at all times.
- Unrestricted full line flow.
- Guaranteed to 500 psi.
- Precision made.

Sold by leading wholesalers everywhere. Write today for Catalog D-55 covering the complete Allin line.

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Almost 1,000,000 Liquid Eyes Sold To Date!

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Fully adjustable gas pressure regulator insures perfect flame control. Torch handle has shutoff valve and built-in pilot flame control for convenience and economy.

Get it from your LINDE jobber

*

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INCREASE BEVCO SALES with COOLERS
AMERICA'S FINEST, most Complete Line



Here's modern, speedy, dry cooling at its best, for all beverages provided by the BEVCO field tested Blower Coil refrigeration system that's trouble-free and dependable. The 5-year warranty guarantees perfect service. Water equipment, dividers, casters, stainless interiors, exteriors, available in all models.

SEND FOR CATALOG C-D1

The BEVCO Company, Inc.
3914-28 S. BROADWAY • ST. LOUIS 18, MO

THEY GIVE YOU
PERFORMANCE
PLUS
YEAR AFTER
YEAR!

ter than prompt efficient service. Keep your trucks neat and well lettered. Keep your men neat, as clean as possible, and provide them with uniforms. Train them to be pleasant and courteous.

Consider the possibility of regular service contracts to cover all service on the year around system after first year warranty.

A routine service check a couple of weeks after start-up, and another at change of season, not only creates customer good will, but saves emergency service calls later.

Complaints are bound to crop up, no matter how hard you try to avoid them. A prompt rectification of the complaint can usually turn it into a fine booster. Some of the best testimonials I have seen have come from customers whose complaints were handled properly.

During your installation the salesman who sold the job should be there every day. He checks to see that work is done as he sold it. He explains the installation to the housewife. He does not waste time, but he shows up every day.

Immediately after start-up, back

goes the salesman when Mr. Home-owner is there to go over the entire installation. He explains how to operate the system for all seasons of the year. He demonstrates filter removal, cleaning, and replacement. He leaves complete written instructions on operation and service. If it's a financed job, he gets the completion certificate signed. If you want pictures of the job for your sales book, he gets permission and takes them. Don't push for new leads yet—it is too soon.

Now that this job has been completed, it goes on your customer's follow-up list. You might set up a schedule along these lines:

One week—Personal thank you letter to customer from management.

Two weeks—Follow-up call by salesman to check performance. Now he presents supply of profit sharing cards to be mailed in with names of prospects.

60 days—Recheck by salesman. Try for names as leads. If you get any, fill out profit sharing card right there. Leave new supply of cards if previous supply is lost. If you want a testimonial letter on this job now is the time to ask for it.

At start of first heating or cooling season—Call-back by salesman to again explain operation. Another pitch for more leads.

Dec. 1—Christmas card list.

11 months after installation—Call by salesman to sell annual service contract (pay your salesman a commission on new service contracts and on renewals). Still another pitch for leads.

Sound like a big job? It is. But this is the kind of operation it takes to merchandise residential air conditioning—a coordinated activity involving every segment of your business, not just the sales department.

If you just want to sell an occasional residential job or two, that's one thing. In that case you can cut corners, and probably get away with it. But if you really want to merchandise residential air conditioning you should plan on doing, in one form or another, all of the things we have discussed here—and what's more, you should do them all well.

**Select this for
chilled water control**

THE MARK OF QUALITY



ELECTRIC-ELECTRONIC

**Automatic
Controls**

Multiple-step
program
motor



Ask for
Program Motor
Control Literature
Kit



For effective step control of multiple compressors in any number of stages, specify Barber-Colman adjustable-speed program motors. See your architect-engineer, or call nearest Barber-Colman Field Office.

Barber-Colman Company

DEPT. E, 1338 ROCK ST., ROCKFORD, ILLINOIS, U. S. A.

Circle No. 117 on Reader Service Card

MCCULLOUGH MANAGES WICHITA BRANCH STORE

John McCullough has been appointed manager of the Wichita, Kan., branch store of Refrigeration Equipment, air conditioning and refrigeration wholesaler. McCullough formerly was with Joplin Supply Co., Joplin, Mo., for 19 years, 10 of them in refrigeration wholesaling and the last eight as manager of the company's refrigeration department.

J. McCullough

Refrigeration Equipment Co.'s Wichita branch is located at 1641 E. First St. The company's headquarters is in Kansas City, Mo., with another branch store in Topeka, Kan.

THATCHER SETS SPECIAL SERIES OF MEETINGS

A series of special air conditioning sales meetings, designed to give dealers a first-hand introduction to two new lines of summer air conditioners and to orient dealers on the latest techniques for merchandising year 'round air conditioning, has been undertaken by Thatcher Furnace Co., Garwood, N.J.

These local conferences are slated for the New Jersey, Washington, D.C., South Carolina and Chicago areas. Additional sessions will be scheduled for other sales territories. The program is supervised and coordinated by Stuart Leigh, Thatcher air conditioning sales manager.

AIRTEMP TO DISTRIBUTE DIRECT IN NEW ORLEANS

Airtemp Div., Chrysler Corp., has established a factory-owned distributorship in New Orleans. The firm will handle Airtemp's complete line of commercial and residential air conditioning and heating products, with the exception of room air conditioners. Engineering, parts, and service also will be included in the operation.

C. M. Barr, former New Orleans assistant regional manager, will manage the firm.

FORMER WILLIS MEN FORM OWN COMPANY

A group of former employees of the Dan H. Willis Co., Akron, Ohio, have formed a new corporation, the Willison Co., to engage in the industrial contracting and retail air conditioning and heating business.

The company will engage in industrial installations up to 500 tons as well as in residential air conditioning from a single room to the complete house. Headquarters are at 135 W. Market St., Akron.

Paul R. Mumma is president

and service manager, and John Pacenta is treasurer and sales manager. The engineering and industrial sales department will operate as a separate division, headed by James Markwald, assisted by Stanley J. Lero and S. Palmer.

Dan H. Willis Co. has abandoned all retail activities, and in the future will operate exclusively as a wholesale distributor of Carrier air conditioning and refrigeration and Iron Fireman gas and oil heating equipment in 14 Ohio counties.

Here's trucking AUTOMATION that lets you combat High Cost Hauling



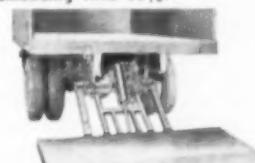
Cost saving way to handle heavy packaged goods such as barrels, cylinders, carboys, crates, etc. One man with a hand truck can handle any loading or unloading operation at big savings of time.



ANTHONY LIFT GATES FOR 3/4 TON and Larger Trucks and Semi-Trailers



Model No. 144 handles loads up to 1000 lbs. Cuts loading and unloading time 50%.



Model No. 145 handles up to 2000 lbs. on 1½-Ton and larger trucks and semi-trailers.

Model No. 146 handles up to 4000 lbs. on heavy trucks and semi-trailers.



ANTHONY COMPANY
Streator, Illinois

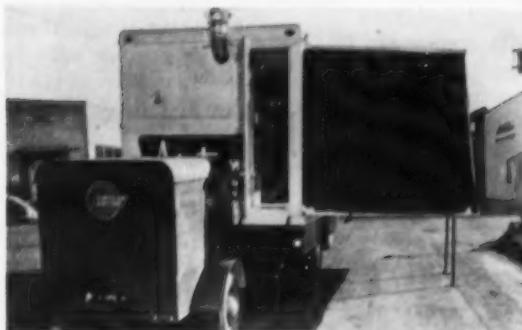
If high freight rates and costly delivery services are cutting a swath out of your profit picture, here are five ways you can offset them.

1. Speed up deliveries.
2. Develop faster, easier ways of loading and unloading trucks.
3. Systematize handling of bulky, awkward, heavy shipments.
4. Prevent damage to goods, yet make it easier and safer for drivers to handle most shipments alone.
5. Help drivers contribute to the satisfaction of the receiver.

All of these advantages are yours when you install Lift Gates on your trucks. We will be glad to recommend the systems, the size and type of Gate best suited for your work.

Write, wire or call us today—no obligation. One of our representatives is nearby. Dept. 5608.

THIS DISTRIBUTOR HAS HIS "SCHOOL" ON WHEELS



SHOW BOAT on wheels is the name given this mobile air conditioning display being used by a Birmingham, Ala., distributor to conduct on-the-spot dealer training courses. Side of the trailer extends to form a small auditorium.



MOBILE classroom is well equipped for instructional purposes. As many as 16 dealers and salesmen can be accommodated at one session. When closed for traveling, large signs on the side of the trailer provide added advertising.

Steel City Supply Co., Birmingham, Ala., Airtemp air conditioning and heating distributor, has inaugurated a mobile school and display — appropriately titled, "Show Boat on Wheels."

The wheeled "Show Boat" carries live heating and air conditioning units to the dealer's door, where three-hour training sessions are held on product features, installation, and service techniques.

The display has visited dealers in cities throughout Alabama and northwest Florida including Pensacola, Fla.; and Montgomery, Auburn, Troy, and Mobile, Ala.

The "school" carries its own classroom and the entire right side of the truck body is piano-hinged at the bottom. This lets down to form a platform, or auditorium, where 16 people can be seated. An inner flap, hinged at the top of the body, swings up to form a rain-proof roof. Canvas curtains then are wrapped around the extension and the classroom is ready for use.

Equipment includes Lo-Boy LP gas furnace and a 2 hp waterless condensing unit connected with a

"V" type cooling coil mounted on top of the furnace. With it—dealers are shown how to install liquid and suction lines; furnace power supply; wiring to the condensing unit; and thermostat wiring. Suction, head, pressure, and oil gauges are installed, as well as necessary thermometers, so that dealers and servicemen can learn how to take complete check, test, and start readings. There also are mock-ups of service entrance panels and rain-type disconnect switches. Non-operative vertical fan-coil unit and 2 hp commercial water-cooled package air conditioner also are aboard.

Fuel comes from two liquefied petroleum gas bottles concealed in the outer body skirt beneath the truck. A five-kilowatt automatic Kohler 115-230 volt A.C. generator is mounted on a two-wheel trailer and towed behind the display. Current is supplied from this source or from a range outlet in the dealer's store.

Designers of the unit were Bob Hall, president of Steel City, and Elliot Higgins, engineer and manager of the company's heating and air conditioning division.

DIFFUSER-LAMP COMBO KILLS 99% BACTERIA

An innovation in "bacteria-free" air conditioning for laboratories has been successfully developed at the University of California Bacteriological Research Center, Berkeley, Calif.

The system claims 99% bacteria free air when used with an air diffuser manufactured by the Pyle-National Co., Chicago manufacturer of air diffusing and electrical equipment.

Basis of the system's success is this low-velocity air diffuser which allows more time for germicidal lamp rays to have an effect on airborne bacteria as it moves into the lab from the diffuser.

Former systems employed a germicidal lamp installed in the air duct above the diffuser, where air was traveling from 1,000 to 1,500 fpm. By using a low-velocity air diffuser, and installing the lamp in the diffuser itself, air passes the germicidal rays at only 300 fpm maximum thereby insuring a greater bacteria "kill."

Working in cooperation with Pyle-National were General Electric and Westinghouse, who manufacture the germicidal lamps and who determined the wattage necessary with the low velocity air diffuser.

ROTARY SEAL SOLD TO MUSKEGON PISTON RING

Rotary Seal Co., Chicago, recently was sold to the Muskegon Piston Ring Co. of Sparta, Mich., and will be operated as the Rotary Seal Div. of that company. Charles Muller is no longer associated with the company.

RECOLD NAMES GORRELL

L. R. Gorrell has been appointed distributor for "Recold" air conditioning and refrigeration equipment in North and South Carolina, according to an announcement made by Refrigeration Engineering, Inc., Los Angeles. Gorrell was a partner in the contracting firm of Morris & Gorrell, Inc., until 1951 when he entered the field as a manufacturer's representative. His office is located in Raleigh, North Carolina.

NEW COOLING TOWER STANDARDS AVAILABLE

A much-needed new standard for "Water-Cooling Towers for Use with Air-Conditioning and Refrigeration Equipment" has been released by the Air-Conditioning and Refrigeration Institute. It is known as ARI Standard 910-55.

Purpose of the standard is to establish minimum requirements for the design and construction of prefabricated natural-draft and factory-assembled, mechanical-draft, water-cooling towers for use with air-conditioning and refrigeration equipment.

The new standard defines the following types of water-cooling towers: natural-draft, mechanical-draft, induced-draft, forced-draft, spray-draft, spray-filled, deck-filled, spray-deck, and packed. It also explains circulating water, cooling range, approach, drift, blow-down, make-up and total heat dissipation.

Components to be included as standard equipment are outlined as well as rating and performance and necessary published data.

Copies of the new Standard are free upon request to the Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington, D. C.

ALTA IS TENNEY REP. IN ROCKY MOUNTAINS

Tenney Engineering, Inc., has named Alta Engineering as exclusive sales engineering representatives for Tenney environmental equipment in the Rocky Mountain area.

Alta with headquarters in Denver, will service all of Colorado, Utah, and Wyoming.

2 FIRMS ARE NAMED RECOLD DISTRIBUTORS

Refrigeration Engineering, Inc., has named two companies to distribute its "Recold" products. Cold-craft Refrigeration Co. has been appointed distributor for Recold commercial and industrial refrigeration equipment in the Manhattan and Long Island, N. Y., area. Z. M. Prane Co. has been named distributor for air conditioning equipment in the Chicago area.

LOS ANGELES OFFICE OPENED BY CONNOR

Connor Engineering Corp., has opened a district office in Los Angeles, California. Loyd S. Helms, formerly with English & Lauer, Inc., Los Angeles, for the past eleven years, will be manager.

GIBSON NAMES FOUR ON CONDITIONER LINE

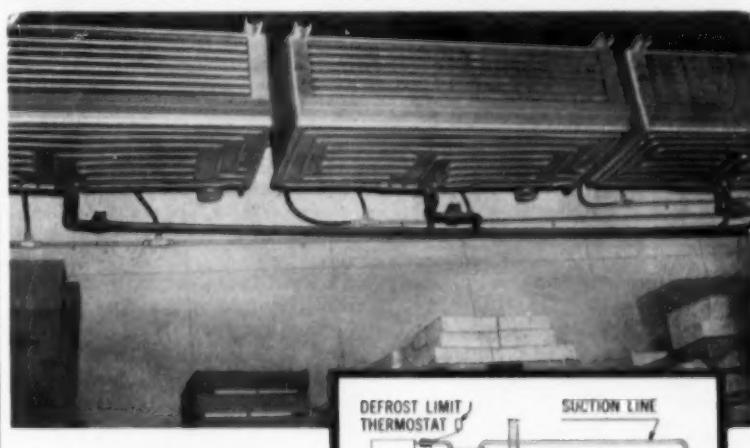
Four residential and commercial air conditioning distributor appointments have been made recently by Gibson Refrigerator Co.

They are:

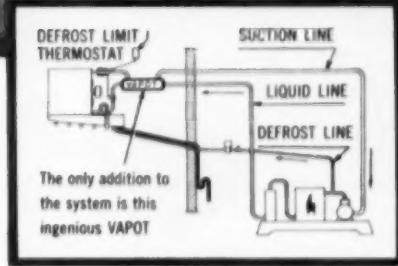
Modern Distributors, Inc., Chattanooga, Tenn.; Air Conditioning Supply Corp., Cleveland; Fred M. Dygert Sales, Grand Rapids, Mich.; and National Mill Supply, Inc., Fort Wayne, Ind.

NEW TEXACO REGION

Texaco has expanded its specialized service to industry by opening a regional office of the Technical Service Div. in Atlanta. J. F. Collins Jr. heads the office, at 873 Spring St., N. W.



NOW Defrosting Simplified



Recold Vapomatic

VAPOR DEFROSTING METHOD

RECOLD Vapomatic uses the heat of compression in a new way to accomplish fast, foolproof defrosting. Heat is instantly available and continues undiminished until the coil is completely defrosted. Refrigeration then resumes immediately. There is no unnecessary time lag.

- Never runs out of heat
- Self contained
- Uses no external heat sources
- Requires no critical adjustments
- Only three line connections to install
- Defrosts automatically
- Requires no special controls to avoid slugging the pump

■ 100 units field tested for 18 months

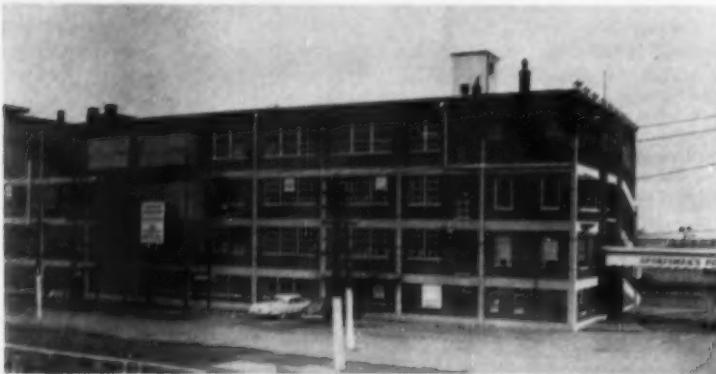


Write for illustrated folder—

REFRIGERATION ENGINEERING, INC. Dept. E-2
7250 East Slauson Ave., Los Angeles 22, California

Circle No. 120 on Reader Service Card

NOW CHICAGO RACING FANS CAN BE COMFORTABLE LOSERS



KING-SIZE COOLING is provided for followers of the "sport of kings" at Sportsman's Park, Chicago. The entire two top floors of the park's pari-mutual building have been air conditioned by a 140-ton system installed by Acme Temperature Control Co., Airtemp contractor-dealer. Shown in this view of the exterior (rear) of the pari-mutual building are the three packaged central station air conditioners (evaporative condenser models) serving the third and fourth floors. The units are mounted on a special steel-frame structure, and room is provided for the addition of three more cooling units at a later date when the building's two lower floors are enclosed. Air distribution is by means of duct systems which span—lengthwise—the entire wagering areas of the third and fourth floors.

MORE PLANT SPACE FOR TUBE MANIFOLD

The Tube Manifold Corp., Buffalo, has increased its manufacturing space three-fold with the acquisition of a 125,000 sq. ft. building formerly occupied by Adaco Industries, North Tonawanda, N. Y.

New equipment is being installed in the plant which will make possible a one-floor layout for volume production of tubular components.

RECONY ACQUIRES VIRGINIA PLANT

In a move to expand facilities and product, Recony Corp., manufacturers of aircraft and electronic van air conditioners, has acquired Old Dominion Iron & Steel Corp. of Richmond, Va. The acquisition will replace Recony's Emporia, Va., plant destroyed by fire several years ago.

NAMED BY WORTHINGTON

Elliott-Lewis Distributors Inc., of Philadelphia, has been appointed franchise wholesalers for packaged air conditioning units manufactured by Worthington Corp. The firm will cover the counties of Philadelphia, Bucks, Montgomery, Delaware, and Chester.

TRANE LETS CONTRACTS FOR NEW BUILDING

The Trane Co. awarded contracts for the construction of a new engineering office building. Cost of building and equipment has been set at \$1,250,000.

Peter Nelson & Son, Inc. was given the general contract, and George J. McKoskey, the plumbing, heating, air conditioning and ventilating award.

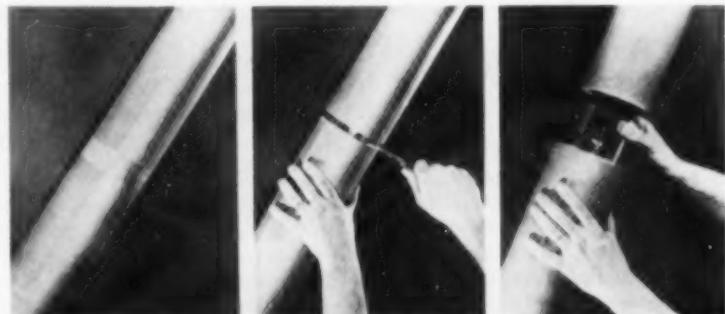
Construction for the 65,000 sq ft engineering building, which will consist of basement and one-story above-grade, is expected to be completed by Feb. 1, 1957.

The new space will be utilized for the product and design engineering departments, and also for a showplace of some 35 lines of air conditioning, heating, ventilating and heat transfer equipment.

AIRTEMP NAMES TWO NEW DISTRIBUTORS

Two distributor appointments have been announced recently by Airtemp. Banks-Miller Supply Co., Huntington, W. Va., will handle the entire Airtemp line, including commercial and residential air conditioners, heating products, and room units in 36 counties in southern Ohio, West Virginia, and eastern Kentucky. Union Hardware & Metal Co., Los Angeles, will distribute Airtemp room conditioners in eight southern California counties and Clarke county in Nevada.

SOMETHING NEW IN PREFABRICATED AIR DUCTS



NEW PREFAB AIR DUCT made of glass fiber and plastic and called "Insul-Pipe" has been developed by Gustin-Bacon Mfg. Co. for use with Coleman air conditioning and heating systems. As demonstrated in the pictures above, lengths are joined by a short length of metal tubing, the sections are pushed together, and sealed with a special adhesive tape. The specially developed duct is designed to solve the problem of uniform application of thermal insulation and vapor barrier to metal ducts that pass through attic and crawl space areas. Insul-Pipe is said to require no wrap-around insulation, and can be mortised to fit around 45- and 90-degree elbows.

100% AIR CONDITIONING FOR CLOTHING PLANT

H. Daroff & Sons, manufacturers of Worsted-tex and Botany 500 clothes will have the first completely air conditioned clothing plant in the world in operation this summer.

A half-million-dollars worth of General Electric packaged air conditioning units, totaling more than 1,100 tons, are to be installed in Daroff's Philadelphia plant to provide conditioning, temperature and humidity control to meet the specific requirements of the clothing plant.

The installation will be made by Republic Air Conditioning Co., Philadelphia. The air conditioning units will be placed on platforms suspended from the ceiling thereby requiring none of the floor space now in use. Almost no duct-work will be installed. The air will be distributed from the units by standard air distributor plenums. A total of 83 units will be used.

According to Michael Daroff, president of H. Daroff & Sons, a major benefit of the air conditioning and dehumidifying system will be greater comfort for the factory workers with elimination of lost production hours, due to excessive heat and other weather conditions. This will mean a greater degree of control over planned production schedules.

ECKLES APPOINTED COLEMAN DISTRIBUTOR

Eckles Distributors has been named distributor for Coleman heating and air conditioning equipment in northern Florida and southern Georgia.

J. D. Eckles, formerly national service manager for the Wichita manufacturer, is owner and general manager.

REPRESENTS LEWYT IN ROCHESTER AREA

Di Clemente-Voike, Inc., Rochester, N. Y., has been named a distributor by Lewyt Air Conditioner Corp.

The firm will handle Lewyt's built-in wall air conditioner in nine upstate New York counties. John Di Clemente is president and Fred Bauman is sales manager.

YORK HONORS FIVE MEN FOR SALES ACHIEVEMENT

Five sales engineers have been named sales engineering councilors and all-star sales engineers, highest honors bestowed by York Corp. Those honored were J. W. Chandler, manager of York's Washington, D. C. office; J. S. McCollam, manager of the Philadelphia office; E. A. Froese, Denver office manager; F. D. Graham, head of the New Orleans office; and R. S. Sandifer, Dallas office manager.

FORM NEW SUTTON DIV. FOR SALES TO MFRS.

Organization of an Original Equipment Div. to develop sales of motors, coils and component parts to other manufacturers has been announced by the O. A. Sutton Corp., Wichita, Kan. Paul Best, who has had more than 17 years experience in this specialized field, has been appointed sales manager of the new division.

Best was formerly application engineer for sales with Robbins & Myers at Springfield, Ohio.

COMMERCIAL DEFROSTING TIME SWITCHES

3 all-new
'complete lines'
by...TORK

offering...

- ★ extra-fine . . . accurate timing
- ★ wide variety of contact arrangements
- ★ dependable "long-life" heavy-duty motor

TORK has engineered Time Switches to meet your exacting standards and specifications. The new, versatile TORK models have built-in auxiliary contacts with time-delay circuits . . . The finest selectivity with split-minute accuracy . . . The TORK has an extra heavy-duty motor with decidedly more power and a wider temperature range than any similar motor now in use.

You play safe with TORK whether you defrost with hot gas, reverse cycle, electric heat or compressor shutdown. Yes . . . there's a new TORK model specifically designed for your defrosting problem.



PLAY SAFE USE THE BEST
**WRITE NOW FOR COMPLETE
DETAILS and SPECIFICATIONS**

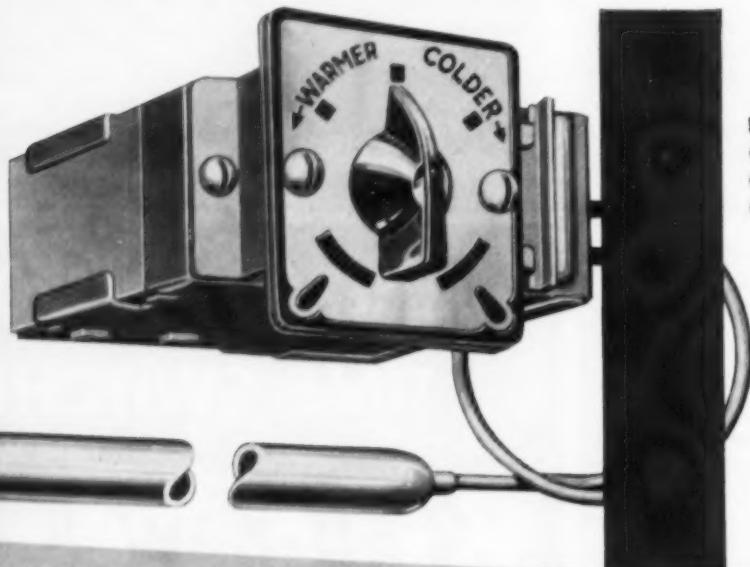
TORK CLOCK CO. Mount Vernon, N. Y.



Circle No. 121 on Reader Service Card

QUICK CALLS... with never a call-back

Ranco's close-differential air conditioning control installs quickly, serves without service



Unit Air
Conditioner
Control
C12-5010

This narrow (3°) differential thermostat for unit air conditioners speeds installation time and gives you a neat profit on one of your thorniest service jobs.

You can use it as a single-pole, single throw switch (for cooling only) employing two terminals . . . or as a single-pole, double throw switch (for heating and cooling) employing three terminals. Wired with a manual selector switch to a reversing valve or heater, one pair of contacts cycles the compressor for cooling; the other pair cycles the compressor and reversing valve or heater for heating.

Ranco makes thousands of other controls, too—each designed to help you boost profits by cutting job time and eliminating call-backs. For the right control every time . . . see your Ranco wholesaler.

Ranco Replacement Reference No. 1544

Which control to use? This Reference describes nearly 5,000 Ranco Controls by application. Get your copy from your Ranco wholesaler today (not available from factory).



Ranco Inc.

COLUMBUS 1, OHIO

World's Largest Manufacturer of Refrigeration Controls

Circle No. 122 on Reader Service Card

Here's How

PROFITABLE SERVICE AND INSTALLATION PRACTICES

What Makes Suction Pressure Misbehave?

SUCTION pressure is commonly referred to as "back pressure," and is the pressure in the suction line where it leaves the evaporator or cooling coil. Normal suction pressure is, of course, dependent on the unit application and in relation to the variable conditions that are imposed on an operating system.

On packaged air conditioning units, the design suction pressure

filters is a *must* assignment to insure proper operation of equipment.

Suction pressure has a direct relation with the expansion valve operation. On packaged units the evaporator and expansion valve are sized to coincide with a balanced operation.

The main operating force in the expansion valve is superheat, and a gas is superheated whenever its temperature is higher than the temperature corresponding to its pressure at saturation.

Should the expansion valve feed

or high suction pressure may be caused by the expansion valve being open too wide or the thermal bulb being loose on the suction line.

A leaky oil separator that permits discharge gas to return to the compressor crankcase through the separator oil return line will cause a high suction pressure. This condition is indicated by a hot line temperature, whereas the normal feel of the line should be room temperature.

High suction pressure may also come from leaking suction plates in the compressor.

Low suction pressure may be caused by too high a superheat adjustment on the expansion valve that is, the valve is not open wide enough to pass refrigerant through the entire surface of the evaporator.

Failure of the expansion valve power element will also cause low suction pressure. Other factors influencing this suction pressure are restricted air filters, low refrigerant charge, and possible restrictions in the liquid line.

CHECK CHART OF SUCTION PRESSURE TROUBLES

CONDITION	SYMPOMS	CORRECTION
High Suction Pressure	Liquid refrigerant flooding back from evaporator.	Check expansion valve operation and adjustment, also thermal bulb attachment.
	Oil separator leaking discharge gas back to crankcase.	Jar oil separator body by bumping with block of wood or hammer.
	Leaky suction valve.	Pump down compressor, remove cylinder heads and inspect suction valve plates.
Low Suction Pressure	Restricted liquid or suction lines.	Examine strainer screen. Expansion valve bulb may have lost charge.
	Expansion valve not adjusted properly.	Adjust further open.
	Air filters clogged.	Clean filters.

runs between 35 and 40 pounds.

Variations from this design suction pressure may usually be attributed to clogged air filters, which restrict the circulation of air through the evaporator, and to improper functioning of the expansion valve.

These two items are mentioned first because they constitute 90% of service problems. Periodical cleaning or replacement of air

too much liquid into the evaporator, all of the liquid does not boil off and some liquid approaches the remote bulb which lowers the temperature of the bulb and reacts to operate the expansion valve toward its closing position.

If insufficient liquid is fed into the evaporator by the expansion valve, the opposite valve action occurs.

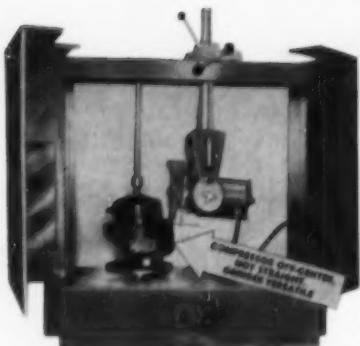
Suction pressure above normal

Keep a Record of Your Customers' Equipment

A simple but efficient record system can prove a big help to any serviceman in building up a "plus profit" business in V-belts and similar accessories.

Say, for instance, that you make a service call on one of your customers. In the course of repairing the equipment, you note that the V-belt is frayed. You suggest to the owner that he allow you to replace it, but he turns you down with some such comment as: "The machine's still running, isn't it?"

Many a serviceman, met with this sort of a rebuff, would simply shrug his shoulders and dismiss the incident from his mind. But not you. You're smart. Before driving away from the store you



ONE HERMETIC Repair Job per Week will pay for your **FRANKELL** HERMETIC COMPRESSOR OPENER*

Simple to operate. Compact, semi-automatic machine that can easily open any compressor up to 20" in diameter, regardless of the location of weld.

Millions of hermetics in use. Thousands in need of repair. The Frankell liberal payment plan for the compressor opener . . . helps you obtain your share of this profitable business.

Get the full story, write direct to Frankell.

*Pat. Pend.

**EXCHANGE
HERMETIC
STATORS
AVAILABLE.
All Sizes Rewound.**

FRANKELL MFG. CO.
1074 HOME ST. • NEW YORK 59, N. Y.

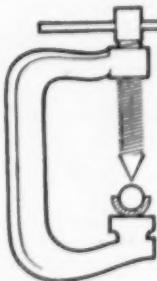
Cir No. 121 on Reader Service Card
150



note the condition of this worn belt on the customer's service record.

Next time he calls you for emergency repairs you're pretty likely to know right where the trouble is. Note what size belt his machine uses (always a good idea) and take that belt right along with you on the call, thus saving yourself an extra trip and surprising the customer with your knowledge of his equipment.

Then, if you tactfully point out to the owner that replacement of the belt on the previous call would have saved him the cost of this emergency service, chances are he will follow your recommendation the next time a comparable situation arises.



HERE is a little gadget that works nicely when it comes to installing a capillary tube in the suction or discharge line of a hermetic unit for purposes of servicing.

Remove the screw from a small C-clamp and grind the end to a sharp point. Then solder to the bottom of the clamp, at right angles to "C", a short section (about 1") of $\frac{3}{8}$ " i.d. pipe. This provides a cradle to hold the tubing in place and prevent it from mashing or flattening as it is pierced by the sharpened screw point.

This method of piercing a hole in the tubing also minimizes the danger of getting any burrs inside the tubing, and consequently into the unit.

C. C. Pride
Tulsa, Okla.

Proper Filing of Stencils Makes Re-Use Simple

Many air conditioning and refrigeration service firms use mimeographed folders, letters, and other such pieces rather regularly in their business, and if you are one of them, maybe you have been preparing new originals every time you wanted to run off another supply for later use.

You needn't throw away these

stencils; you can file them and use them over and over, within reason of course, and here's how to do it:

Before filing them for reuse, run the file folder or wrapper through the duplicator. Then remove the stencil from the mimeograph. If water soluble ink has been used, wash the stencil with cold water. Stencils on which oil-base inks have been used may be filed in absorbent wrappers without cleaning. These wrappers will blot the ink from the openings.

Lay the stencils flat in file folders. Attach an identification tab at the head of the stencil. File the folders flat. An open-end cardboard file box is recommended.

handyTube Bender

**Smoothly Bends ANY
Pipe or Tubing**



$\frac{3}{8}$ " to $1\frac{1}{8}$ " O.D.



• Just a twist of the wrist assures perfect, even bends . . . right-angle, any angle, U and offset—every time. Eliminate need for s.s. No more guesses—no kinks! Save enough time, labor and money on ONE Job to pay for your Handy Bender.



See your supply house—or write for free folder today.

HOLSCLAW BROS., INC.
438 N. WILLOW ROAD — EVANSVILLE, IND.

Circle No. 23 on Reader Service Card
MAY, 1956 • COMMERCIAL REFRIGERATION

WHAT'S IN IT FOR YOU . . .

Continued from page 104

dealer trying to go into air conditioning. You certainly have the technical and mechanical know-how, and no big inventory problem is involved. Most of the major air conditioning manufacturers are either already in heating or are rapidly moving that way. If your manufacturer can't supply you yet, there are plenty of good heating jobbers or wholesalers who will, and on a one-piece-at-a-time basis if you desire.

Many of you have done a little residential work in the past but have never put any real effort into the field. There seem to be several reasons for this. Some of you were forced to use commercial equipment which was not readily adaptable to residential work. Others started out on project work which often isn't profitable unless you are a specialist in this field. Still others lacked the sales know-how to get enough volume to make

it worthwhile to promote residential business.

Things have changed, and they are still changing. Skip the project market for now, but take another good look at the custom new home and existing home fields—and don't miss the boat!

Consider these factors in arriving at your decision:

(1) Residential is by far the fastest growing segment of the air conditioning industry.

(2) Acceptance is here. Enough people want to buy now to make a profitable market that is worth the specialization in sales effort required.

(3) The pool of non-air conditioned homes (even in just the high price brackets) runs into millions. It will take years to saturate it.

(4) Every job you do in a residence builds a profitable load for your service department, if you sell your service to the owner.

(5) Nearly every manufacturer now has a complete line of specialized equipment designed for every type of residential job. You

no longer have to "make do" with commercial equipment.

(6) Air cooled equipment, which has more than proved itself in the last two years, eliminates three of the major headaches of residential work—water supply, water disposition, and expensive plumbing.

(7) The custom new home and existing home segments of the residential field now comprise about two-thirds of the total, and they are just as profitable as commercial packaged unit work.

(8) If you install commercial packaged units, you now have every mechanical and engineering facility you need for residential work. No additional investment in these facilities is required.

(9) Adequate, long term, financing is readily available everywhere for home improvement work. And remember, if it's a time payment job (and most of them are) you get paid as soon as the completion certificate is signed.

(10) The one thing you may not have is the specialized sales know-how that is absolutely essen-

Use Stic-Klip® for Insulation Installation

ON AIR CONDITIONING AND VENTILATING SYSTEMS
FOR COLD STORAGE PLANTS, BUILDINGS AND SHIPS.



- 1 TYPE B with Locking Plate
- 2 TYPE B
- 3 TYPE A
- 4 TYPE S ADHESIVE
- 5 SPRING TUBING CLIP 1/4" and 3/8"
- 6 HOLDING PLATE used with Type A and B
- 7 TYPE N with Speed Washer
- 8 INSERT BASE Securing Signs, Wall Cabinets, etc.

Stic-Klips permanently bind almost any insulating material to masonry, wood, metal—flat, corrugated, curved, unusual-shaped. This modern method eliminates drilling, puncturing metal—saves time and money.

For illustrated booklet on any of these applications,
write Dept. CR

Stic-Klip® MANUFACTURING CO.

50 Regent St., Cambridge 40, Mass.

Circle No. 125 on Reader Service Card
& AIR CONDITIONING • MAY, 1956

Speeds Soldering

LA-CO FLUX-STIK

Self-Cleaning • Non-Acid • No Running

Just a few strokes of the stik does the trick. There's no mess . . . no waste. Powerful fluxing action goes right through oily and rusty surfaces. No tedious cleaning or wire-brushing . . . assures a perfect union of solder and metal. Safe to use . . . will not pit or corrode metal. **For all Soft Solders.**

Ask your supplier for LA-CO FLUX-STIK . . . or write us for sample.

Also in paste and liquid form. Other LA-CO Fluxes for all specialized needs. Write our Engineering Dept. for free help on your flux problems.



Lake Chemical Co.

3107 W. Carroll Ave., Chicago 12, Ill.

Circle No. 126 on Reader Service Card

tial if you are to do a profitable volume in the residential field. This is not too difficult to get, but you will have to make some investment in manpower and promotion.

Creative selling is the key to profit in the existing home air conditioning field. Your normal advertising and promotion for the commercial field, plus your local reputation, is bound to bring you some leads to quote residential jobs. When you get those leads you can bet that every other dealer in town was called too, and you're in a price fight to get the job.

10 Good Years Ahead

Real residential type selling, the type that's been done for years in the insulation, combination window, and siding fields, has always built its profit by actually creating sales, not just filling orders. The lead is created by advertising, canvassing, or a satisfied customer. A salesman surveys the job, builds the prospect's desire, and closes the sale before the competition knows that the prospect exists.

The salesman makes money, you make money, and the customer gets a top-flight job and he is happy. Properly handled, that customer is a never ending source of more good leads, which lead to more profitable sales. The profit formula in residential air conditioning is as simple as that.

Yes, it takes know-how to sell that way, but you can acquire that sales know-how and cash in on this terrific market that's just beginning to build up. There are 10 good years ahead in residential air conditioning if you will start now.

Think it over!

SWEIGER-DAVIDSON CO. TO REPRESENT KENNARD

Sweiger-Davidson Co. has been appointed sales representative in Chicago and the immediate trading area for Kennard Corp. of St. Louis. They will represent Kennard on their entire line of air conditioning products.

Bob Sweiger and Lew Davidson are principals of the company.

HUPP TO PURCHASE GIBSON REFRIGERATOR

Directors of Hupp Corp. and Gibson Refrigerator Co. have approved an agreement whereby Hupp is to purchase the business assets of Gibson.

This proposed purchase of Gibson assets follows the acquisition earlier this year of approximately 60% of Gibson common stock by Hupp. It is planned that the present management of Gibson will continue to operate the company as a division of Hupp.

Hupp directors announced the resignation of D. S. Smith as president of Perfection Industries Division of Hupp, and elected William H. Haag as president of the Perfection Division. Smith continues as a director and vice president of Hupp Corp.



COVER-UP for window air conditioners are these indoor movable shutters designed by the Paul Heinley Co. of Los Angeles. The shutters may either be folded back when the machine is turned on, or can remain closed with the louvers open to allow full circulation of air. The company claims that tests show that rooms with window shutters are 27% cooler in warm weather and require 20% less fuel in the winter.

TWO COIL STANDARDS RELEASED BY ARI

Two new standards on the testing and rating of air-conditioning and refrigeration equipment have been drafted and released by the Air-Conditioning and Refrigeration Institute.

The first (ARI Standard 410-56, "Forced Circulation Air-Cooling Coils") specifies minimum requirements for forced-circulation air-cooling coils for application under nonfrosting conditions and applies to air-cooling coils using either water or volatile refrigerants. This Standard includes mini-

mum equipment, methods of rating, design, construction and safety provisions.

The other (ARI Standard 411, "Standard for Methods of Testing and Rating Forced-Circulation Air-Cooling and Air-Heating Coils") prescribes methods of testing and rating both air-cooling and air-heating coils to assure uniform capacity information on the coils.

Copies of the Standards may be obtained from ARI headquarters, 1346 Connecticut Ave., N. W., Washington 6, D. C., Standard 410-56 at 25 cents and 411 at \$1 a copy.

UTTER & SUTER WILL SELL WEATHERTRON

Utter & Suter Co., Lexington, Ky., has been appointed a wholesaler for the G-E Weathertron. The company will distribute Weathertrons in the counties of Bourbon, Clark, Fayette, Jessamine, Madison, Scott and Woodford. Their address is 823 West Pine St., Lexington. Charles Utter and W. C. Suter, Jr. are partners of the company.

NEW DISTRIBUTORS NAMED BY SERVEL

Beaullieu Air Conditioning & Heating Co., of Lafayette, La., and Mechanical Equipment Co., of Mobile, Ala., have been appointed as distributors of Servel air conditioning products in their respective trading areas. Beaullieu Co. is located at 610 Garfield St., Lafayette. Owner is Frank Beaullieu. Mechanical Equipment Co. has headquarters at 824 Holcombe Ave., Mobile. Officers are E. J. Vulevich, owner, and Gerald Leff, sales manager.

NAMED WESTERN OUTLET

The Pacific Scientific Co., Los Angeles, has been appointed Western distributor (representative) of Wolf Linde ammonia valves and fittings. Sales and service of these heavy-duty valves, manufactured by Dersch, Geswein & Neuart, Inc. of Chicago, will be handled by Pacific's air conditioning division.

REFRIGERATION SUPPLY, RICHMOND, IN NEW "HOME"



VISITORS SCAN INSIDE of 18,000 sq.ft. building as Refrigeration Supply Co. marks opening of new headquarters in Richmond, Va. The building has 5,600 sq.ft. for city sales and parts departments, 2,400 sq.ft. for office and display space, with the balance for shipping department and warehousing of major equipment. Founded in 1935 by the late George W. Booth, the company now is operated by Walter E. [in foreground with glasses] and Edward L. Booth. The former is head of the refrigeration department, and the latter manages the warranty parts depot. Along with the refrigeration and air conditioning business, the company's activities include heating parts and accessories wholesaling, and warm air heating and residential air conditioning equipment.

AETNA SUPPLY NOW A FATHER-SON OPERATION

Irving J. Fajans, president of Aetna Supply Co., New York City air conditioning and refrigeration parts wholesaler, announces that his son, Kenneth Fajans, has joined with him in the operation of the company.

Aetna Supply Co., formerly a proprietorship, will now be conducted under a partnership with Irving J. Fajans and Kenneth M. Fajans as partners. There will be no change in financial structure, personnel or location. The company has been in business since 1934.

BETZ WILL MOVE TO PLANT IN DANVILLE

Operations of the Betz Div. of Bohn Aluminum & Brass Corp. will be moved to Danville, Ill., where Bohn has recently acquired a 150,000 sq. ft. plant on a 43-acre site. The new plant will be used to expand the activities of Betz products in the air conditioning and refrigeration market.

SIMPSON CELEBRATING FOUNDER'S 50TH YEAR

A placard commemorating Ray R. Simpson's 50th anniversary in the electronics instrument industry has been issued by Simpson

Electric Co., Chicago.

The placard features a photograph of the instrument pioneer superimposed on the dial face of a rectangular electrical meter.



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"Prest-O-Lite" is UCC's trade-mark.

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A Division of Union Carbide and Carbon Corporation
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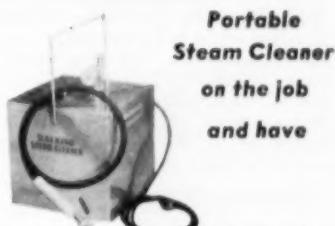


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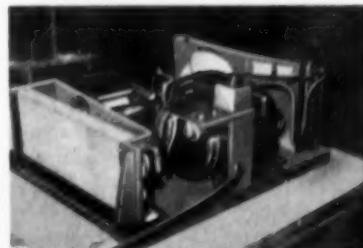


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TYPHOON'S LARRY SPENCE RECEIVES SALES "OSCAR"



DISTINGUISHED SALESMAN AWARD is presented to Larry Spence (right), midwest district manager for Typhoon Air Conditioning Co., Div. of Hupp Corp., by James A. Farley, former U.S. Postmaster General, at the annual award banquet sponsored by Sales Executives Club of New York and National Sales Executives, Inc. Looking on is Will A. Foster, president of the Sales Executives Club. Spence, who joined Typhoon in 1951, was one of 54 top salesmen from some of the nation's leading corporations who were honored at this affair. The award consists of an idealized statue of a salesman, standing with his briefcase at his feet.

CARRIER ANNOUNCES \$12 MILLION EXPANSION

As a further step in its expansion program, Carrier Corp. will spend \$12 million during 1956 for new buildings and equipment at its Syracuse, N. Y. headquarters.

Present plans call for new administration, personnel and research and development buildings costing about \$5 million for which zoning approval has been requested. Production facilities will be expanded at a cost of approximately \$5.5 million. The remaining \$1.5 million will be spent for miscellaneous purposes including major improvements to an existing building that will house the engineering organization of Carrier's utility equipment division.

Total expenditures related to research and development will exceed \$3 million or 25% of the total.

Upon completion of the new buildings the headquarters offices of Carrier and its central engineering establishment will be moved from their present in-city location on Geddes St. to one adjacent to the main manufacturing facilities

on Thompson Road just northeast of Syracuse.

The new structures will add approximately 400,000 sq.ft. of space in the Thompson Road area for a grand total of nearly 2 million sq.ft. The Carrier buildings in the city will be used for a combination of production, office, service and warehousing purposes.

KENNARD BUILDS PLANT TWICE PRESENT SIZE

Kennard Corp. has started construction on a new manufacturing plant in St. Louis County which will be approximately double the size of the present one.

A three-dimensional scale model of the building and equipment was set up to develop the best possible lay-out for the most efficient flow of materials. The new plant will be air conditioned and will utilize the most modern material handling equipment. Ample ground for a several-times expansion program is available.

The entire manufacturing operation will be moved into this new plant. Full production is expected by the end of the year.

FRIGIDAIRE TO MARKET HEATING EQUIPMENT

Frigidaire Div. of General Motors is expanding its broad air conditioning lines to include oil and gas-fired residential heating equipment, according to Mason M. Roberts, GM vice president and head of the division.

Roberts pointed out that the furnace industry expects to sell more than 1,850,000 units in 1956. Replacement sales are expected to account for about 800,000 units.

Frigidaire's new line of furnaces will include 18 gas and seven oil models. The gas-fired units will range in capacity from 70,000 to 190,000 Btu input. Capacities of oil furnaces are from 84,000 to 128,800 Btu output. Four different model types—"high-boy", "low-boy", "counter-flow" and "horizontal"—will be marketed by Frigidaire.

KINETIC DIV. MOVES WESTERN SALES OFFICE

The western district sales office of the Du Pont Co.'s "Kinetic" Chemicals Div. has been moved to Palo Alto, Calif.

The new facilities, located at 533 Cowper Street, will serve customers for the company's "Freon" refrigerants and propellents in the 11-state area west of the Rockies, according to district manager Samuel N. Seely. The "Kinetic" office had been located for the last six months in Menlo Park, Calif.

A plant for manufacture of the "Freon" compounds is now under construction at Antioch, Calif.

AIRTEMP DISTRIBUTOR TO BUILD \$100,000 PLANT

Central Distributors, Nashville, Tenn., Airtemp air conditioning and heating equipment wholesale distributor, has announced plans for construction of a \$100,000 plant in the city's Sideo subdivision. Sideo is a newly opened, 15-acre, industrial development.

The company's new steel and masonry building will have 11,000 sq.ft. of floor space, with provisions for 3,000 more in about 18 months. The building will include offices, display, shops and warehouse space. Occupancy is scheduled about June 1.

ATOMIC CONDITIONING . . .

Continued from page 115

ter chilled by the unit would be piped to forced convectors or dual baseboards to cool the home. In winter, the same sealed piping circuits—a non-radioactive heat transfer medium—would carry hot water, as in a modern conventionally fueled hot water heating system.

Household hot water for bathing, dishes and cleaning would be heated instantaneously by a coil in the boiler, and a snow melting system of tubing extended under walks and driveways would also be powered by the extreme range of high temperatures available from the baby reactor.

Other outstanding advantages of the A-Boiler system include elimination of smoke (since nuclear fission requires no oxygen), dirt and soot. In building a new home equipped with an A-Boiler system, about \$300 to \$500 could be saved by eliminating the chimney. Other savings would be a reduc-

tion in charges for electricity normally required to operate summer air conditioners, and a drastic reduction in maintenance costs.

The A-Boiler system may be installed either by converting present home heating boilers by adding atomic "burners", or as a new integrated unit combining reactor, heat exchanger, and boiler in one package. Approximate cost for converting existing boilers is estimated at \$1000. Cost of a completely new integrated installation is estimated at approximately \$1500. Once installed, the sole "fuel" expense thereafter would consist of "recharging" every 6 years or so by exchanging the exhausted reactor for a fresh one, which would be factory adjusted, sealed and pre-controlled. Life of the system equipped with a cast iron boiler would run to 40 or more years, it is estimated.

Any possibility of explosion within the reactor, it is noted, would be completely eliminated since critical elements necessary for chain reaction would not be present in the fissionable material.

DRY BEVERAGE COOLERS MILK DISPENSERS

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MEET THE BUYER DEMAND

A BIG FREEZER VALUE

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SHARP
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SAFELY
STORES
OVER
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This big freezer value provides ideal backroom storage wherever food is served or frozen food sold. Meeting the most rigid commercial demands, it means an extra measure of safety for food . . . extra savings in economy of operation.

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New Rigid
Saddle
Multi-Size

"TAPALINE" HERMETIC GAUGE PORT

Taps the line quickly
for purging or adding
gas, checking pressures.
One valve fits all 3
tube sizes — 1/4", 5/16",
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Vibration Mountings Engineers are experts in finding the right solution to shock and vibration transmission problems. Their experience and VM's complete line of vibration control mountings and materials can increase your operating efficiency and save equipment and floors. Ask a VM representative to call or submit your problem to our home office.

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Write for Bulletin VAC-11 "Vibration Isolation for Heating, Ventilating and Air Conditioning Equipment".

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United States and Canada.

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PROPER TESTING . . .

Continued from page 121

the difference in heat content, per pound, of air entering and leaving. The formula for computing pounds per hour is 60 times cfm times the density of standard air (.075 lbs. per cubic foot).

To illustrate, a conditioner handling 1200 cfm of air at entering wb temperature of 67 F and leaving at 58 F wb, would be handling $60 \times 1200 \times .075$, or 5400 pounds per hour. Total heat content for air at 67 F wb temperature is (see Table) 31.15 Btu per pound. That at 58 F wb is 24.88. The difference (31.15 — 24.88) is 6.27 Btu absorbed by each pound handled by the conditioner. Total cooling effect is, therefore, 5400×6.27 , or 33,858 Btu/hr.

Sensible cooling is more simply determined by the dry bulb temperature difference between entering and leaving air, multiplying by pounds per hour and the specific heat of standard air, which is .241.

Thus, in the foregoing example, if entering dry bulb temperature is 85 F and leaving air 70 F, sensible cooling will be $5400 \times 15 \times .241$, or 19,521 Btu/hr sensible.

Since total heat absorbed was found to be 33,858 and sensible 19,521, the latent or moisture removal Btu is $33,858 - 19,521$ or 14,337. Since latent heat of vaporization of moisture at air conditioning temperature is 1050 Btu per pound, the conditioner is condensing $14,337 \div 1050$, or 13.6 pounds of moisture per hour. Sensible percentage of cooling is $19,521 \div 33,858$ or 57%.

These examples are given to show the information available from accurate velocity and air temperature measurements.

BRIEF CASE SALES AID



CLIMATE KIT is what Worthington Corp. calls this new brief case-sized sales aid designed to demonstrate to residential air conditioning prospects how the company's equipment can be adapted to any type home. Introduced to more than 700 dealer personnel in meetings throughout the country, the kit consists of a light box beneath a diffused plastic surface, with a series of transparencies showing typical home diagrams. Should the salesman run across an unusual home layout which doesn't match any of those provided in the kit, he can sketch this layout on a transparent acetate sheet which is included. The kit also can be adapted to commercial applications.



BUSH BUILDS TWO NEW WAREHOUSES

Bush Mfg. Co., has erected two new warehouses, one of 35,000 sq. ft. at the main plant in West Hartford, Conn., another of 5,000 sq. ft. at the company's Riverside, Calif., plant.

The company also has established, in conjunction with Heat-X, Inc., warehouses in Chicago, Kansas City and Atlanta.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

BUSINESS OPPORTUNITIES

FOR SALE commercial refrigeration & air conditioning sales & service business. Established 25 years, good location, well equipped shop, Frigidaire and Weber franchises. For more information write Box 5156 COMMERCIAL REFRIGERATION & AIR CONDITIONING.

POSITIONS AVAILABLE

WANTED: SALES TRAINING REPRESENTATIVES. Two men — one to headquarters in Northern New Jersey, the other to headquarters centrally in the Mid West. The job is to provide initial sales training and indoctrination for new dealers and to conduct regional sales training schools for dealers. The products are packaged, commercial and residential air conditioning and heating, but some knowledge of central air conditioning systems is desirable. We will train you on our products. You must have several years experience selling packaged air conditioning and some background in conducting meetings and in public speaking. You will travel the major part of your time. We are expanding rapidly—a good man can move up fast. Salary and expenses—plus an outstanding retirement and insurance program. Send complete resume together with your salary requirements to — R. C. Hughes, Sales Training Manager, Air Conditioning and Refrigeration Division, Worthington Corporation, Harrison, New Jersey.

TEXAS FIRM EXPANDS

Climate Supply Co., formerly under the sole ownership of R. F. Polley, has recently become incorporated and will continue business as Climate Supply Co., Inc., with Polley remaining as president.

The firm has also opened a branch office at 1312 W. Erwin St., Tyler, Tex. Claude C. Calvert will manage the new store.

NAMED VICE PRESIDENT

R. E. Gray has been named vice-president of Harry F. Haldeman, Inc., of Los Angeles, southern California distributor for the United States Air Conditioning Corp. Gray was formerly sales manager for Haldeman Co.

THROUGH-THE-WALL . . .

Continued from page 115

pended upon to show it around among his friends and acquaintances, in boasting of the comforts of refrigerated air conditioning.

This sort of "indirect" advertising has been responsible for bringing in a steady stream of queries to the True organization. Among the more outstanding results was a contract for installing 130 refrigerated 1-ton units at a huge apartment house project which eventually will amount to 260 tons of cooling.

True Air Conditioning Co. reports itself highly pleased with the fact that "one job sells another" and that without any outside selling effort other than direct mail and customer referral some 50 homes already have been converted in this manner, with as many more already "estimated" and awaiting the customer's go-ahead.

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REFRIGERATION WHOLESALER

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• EXTREMELY COMPACT
• LOW PRESSURE DROP
• NO SPECIAL TOWER CONNECTIONS
• CLEANABLE
• EASILY DRAINED

KY SHELL & TUBE CONDENSERS

Announcing the New
KY Series
for 1/3 H.P. Capacity
and over



Featuring high capacities, low water pressure drops, cleanliness—particularly acceptable where limitation of space necessitates condensers of smaller dimensions. Sturdily constructed and Underwriters listed. Low water pressure drops make cross-connections for tower service unnecessary. Water passes can be drained through the lower (water inlet) fitting.

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TO FIT
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NEEDS!



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30 to 900 G.P.M.



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Whatever your requirements, there is a pump in CARVER'S Complete Line that will give you outstanding performance over a wide range of capacities and heads. CARVER... your best buy for better pumping.

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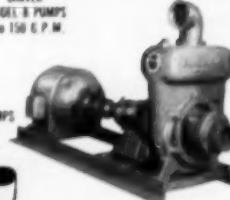
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Self Priming
75 to 4000 G.P.M.

CARVER
the quality name in pumps

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INDEX TO ADVERTISERS

A

Acme Electric Corp.	38
Acme Industries, Inc.	52
Airserco, Inc.	87
Airtemp Div., Chrysler Corp.	65
Alco Valve Co.	1
Allen-Bradley Co.	12
Allin Mfg. Co.	141
American Automatic Ice Machine Co.	2
American/Blower Corp.	102
American Brass Co.	76
American Motors Corp., Kelvinator Div.	42
American Radiator & Standard Sanitary Corp.	56-57
Anderson Chemical Co.	105
Anemostat Corp. of America	67
Ansul Chemical Co.	26
Anthony Co.	143
A-P Controls Corp.	51
Armstrong Cork Co.	43

B

Barber-Colman Co.	142
Bevco Co.	142
Brunner Mfg. Co.	4
Bush Mfg. Co.	31

C

Calgon, Inc.	58
Carbonic Dispenser, Inc.	32
Carrier Corp.	81
Carver Pump Co.	157
Century Electric Co.	66
Chase Brass & Copper Co.	47
Chemical Solvent Co.	131
Cold Corp. of America	25
Coldin Cabinet Co., Inc.	84
Coleman Co., Inc.	17
Commercial Credit Corp.	15
Connor Engineering Corp.	63
Copeland Refrigeration Corp.	Cover 2
Cornell-Dubilier Electric Corp.	135
Crane Packing Co.	123

D

Delco Products Div., General Motors Corp.	13
Detroit Controls Corp.	29
Dole Refrigerating Co.	63
Dover Mfg. Co.	61
Drayer-Hanson, Inc., Div. of National-U.S. Radiator Corp.	11
Duc-Pac, Inc.	130
Dunhill Soda Fountain Corp.	82

E

E. I. Du Pont de Nemours & Co., Inc., Kinetic Chemicals Div.	3
Eastern Industries, Inc.	92
Electric-Auto-Lite Co.	132
Estan Div., American Potash & Chemical Corp.	24

F

Fine Products Co.	94
Flexible Tubing Corp.	6
Flexonics Corp.	136
Frankell Mfg. Co.	150
Frick Co.	48
Frieg Instrument Div., Bendix Aviation Corp.	97
Frigidaire Div., General Motors Corp.	73

G

Garman Co.	122
General Air Conditioning Corp.	127
General Chemical Div., Allied Chemical & Dye Corp.	46

H

Halkirk Co.	153
Halstead & Mitchell	116
Handy & Harman	50
Henry Valve Co.	37
S. A. Hirsh Mfg. Co.	95
Holsclaw Bros., Inc.	150

I

International Register Co.	45
----------------------------	----

J

Jamison Cold Storage Door Co.	Cover 3
Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.	8-9
Jarrow Products	91

K

Kelvinator Div., American Motors Corp.	42
Kinetic Chemicals Div., E. I. Du Pont de Nemours & Co., Inc.	1
Kinney Mfg. Co.	21
Kramer-Trenton Co.	64

L

La Crosse Cooler Co.	86
Lake Chemical Co.	151
Lancaster Pump & Mfg. Co.	49
Larkin Coils, Inc.	89
Lehigh Mfg. Co.	44
Linde Air Products Co., Unit of Union Carbide & Carbon Corp.	141, 153
Little Giant Vaporizer Co., Inc.	60

M

M-B Mfg. Co.	130
Marley Co., Inc.	10
Jas. P. Marsh Corp.	98
Master-Bilt Refrigeration Mfg. Co.	87
McCabe-Powers Auto Body Co.	155
McIntire Co.	128
Mechanical Refrigeration Enterprises	156
Milwaukee Electric Tool Corp.	11
Modine Mfg. Co.	53

Goodloe E. Moore, Inc.	86
J. W. Martell Co.	19, 49
Mueller Brass Co.	40-41

P

Paragon Electric Co.	39
Peerless of America, Inc.	100
Peerless Pump Div., Food Machinery & Chemical Corp.	16
Penn Brass & Copper Co.	112
Penn Controls, Inc.	68
Pinnacle Equipment Corp.	82
Production Stamping Co.	140
Pyramid Instrument Co.	27

R

Ranco, Inc.	148
Reading Tube Corp.	93
Rectoseal	94
Redmond Distributors, Inc.	133
Refrigeration Engineering, Inc.	145
Research Products Corp.	122
Revere Copper & Brass, Inc.	55
Rotary Seal Co.	132

S

Servel, Inc.	22
Sporlan Valve Co.	7, 62
Sprague Products Co.	126
Square D Co.	23
Stahl Metal Products, Inc.	84
Standard Refrigeration Co.	157
Stewart Industries, Inc.	30
Stic Klip Mfg. Co.	151

T

Tecumseh Products Co.	18
Temprite Products Corp.	83
Tenney Engineering, Inc.	120
Tork Clock Co.	147

U

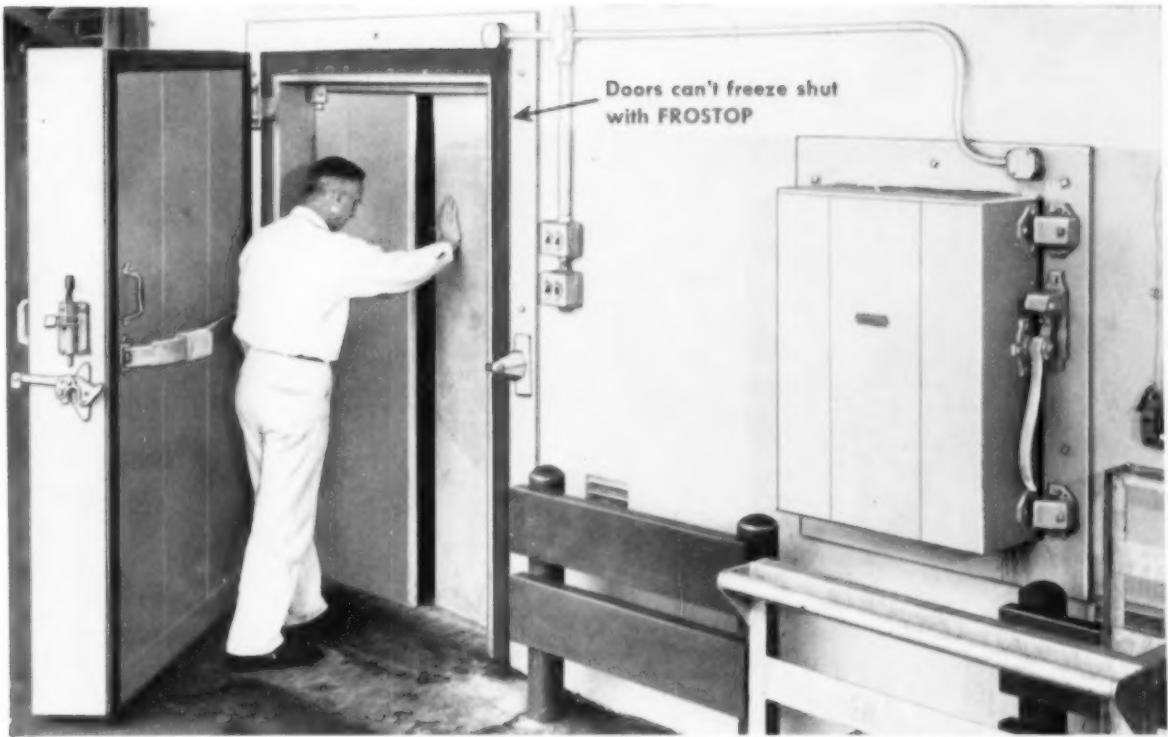
Uniflow Mfg. Co.	60, 90
Union Carbide & Carbon Corp., Linde Air Products Co.	141, 153
United Cork Cos.	54
United Refrigerator Co.	155
United States Air Conditioning Corp.	59

V

Vibration Mountings, Inc.	156
Viking Copper Tube Co.	125
Virginia Smelting Co.	14, 139

W

Wagner Electric Co.	20
Westinghouse Electric Corp.	33-36
A. H. Witt Co.	140
Wolverine Tube Div., Calumet & Hecla	85
Wrap-On Co.	99



Efficient combination—Jamison Super Freezer Vestibule Door with FROSTOP assures minimum cold loss, frost-free doors.

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- Ice-free doors—FROSTOP assures easy opening and tight closure.
- Refrigeration Economy—fast-closing Jamison



Vestibule Unit speeds traffic, keeps cold loss to a minimum.

- Faster Handling—Jamison Passing Door expedites loading, means less handling.

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Millions have benefited financially from the great savings idea born 15 years ago! Yes, U. S. Series E Savings Bonds helped buy homes, pay for children's educations, build safe retirement incomes. And they can do as much for you. Because Savings Bonds are a *money-building* investment—and the easiest way to save ever devised! Join the Payroll Savings Plan today, or buy U. S. Savings Bonds regularly where you bank.

Local boy makes good



WHEN THE LATE Ebenezer Hubbard, a patriotic Concord man, left a bequest for a local statue, there luckily happened to be a real sculptor close at hand.

Even more luckily, young Dan French had never yet sculpted a whole statue—had, in fact, recently started by whittling on turnips. So he'd take the job for expenses, and glad to get it.

Two years later, Daniel Chester French's first statue went up. And Mr. Emerson, a neighbor, gladly obliged with a little verse to go under it, ending—

*"Here once the embattled farmers stood,
And fired the shot heard round the world."*

Now, during his great lifetime, Daniel French was to make many more statues, but his fame needs only two to rest secure. One is the massive, brooding figure in the Lincoln Memorial. The other is his first: the big, bold, living bronze of the Minuteman of Concord.

When, in 1941, a symbol of American strength was sought, the President picked the Minuteman. Ever since, the Minuteman has been the emblem of the great savings program that helped—and still helps—keep America and her people safe and secure. This year, the 15th anniversary of U. S. Series E Savings Bonds, finds 40 million Americans owning 40 billions of Bonds. Are you among them? For your own security—and the nation's—invest in Savings Bonds regularly. And hold on to them!

Safe as America—U.S. Savings Bonds

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